
START

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REMOVAL SUMMARY REPORT

VASQUEZ BOULEVARD AND I-70
Denver, Colorado

TDD No. 9809-0014

DECEMBER 23, 1998



URS

OPERATING SERVICES, INC.

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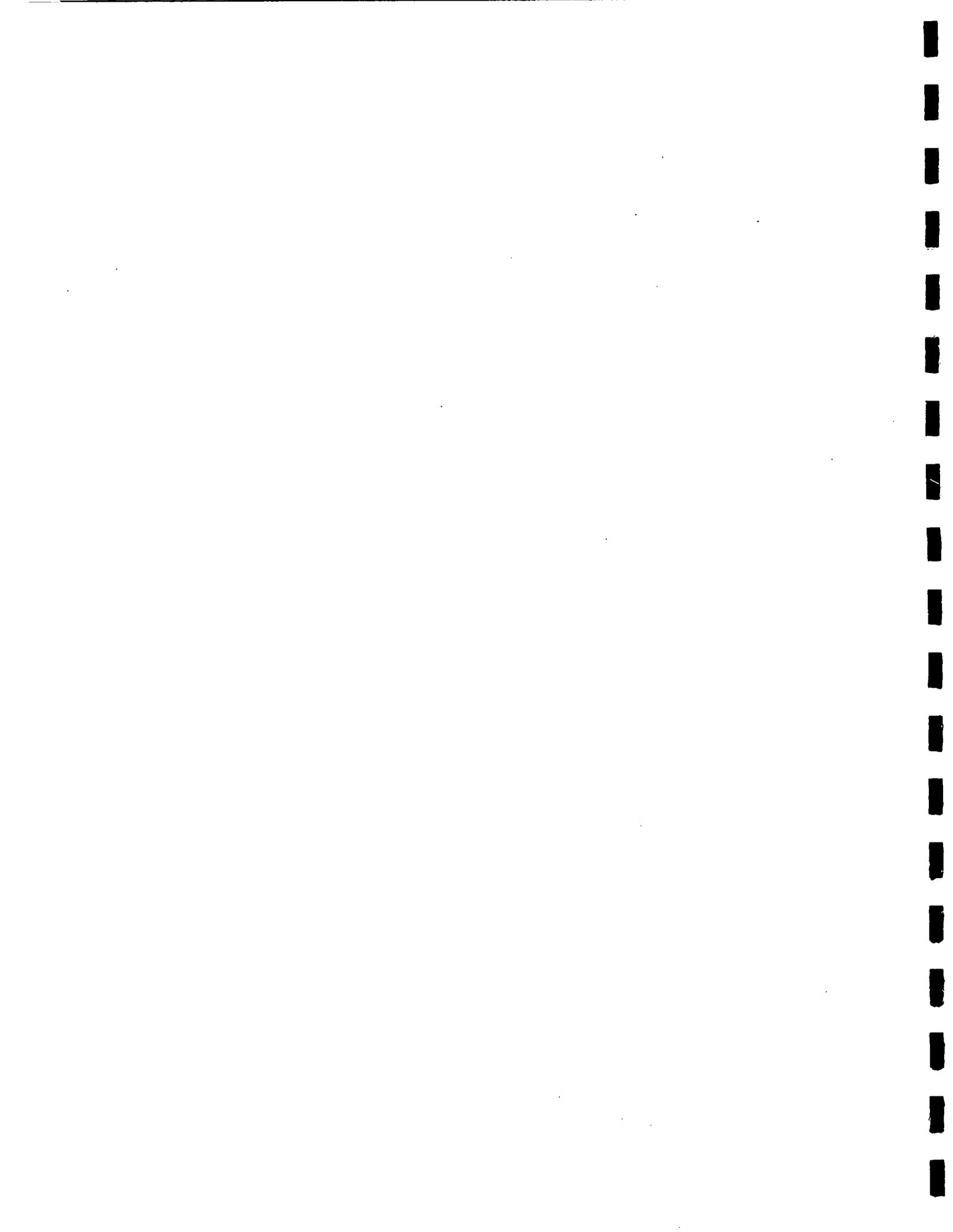
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REMOVAL SUMMARY REPORT
VASQUEZ BOULEVARD/I-70 REMOVAL

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1.0 INTRODUCTION

URS Operating Services, Inc. (UOS) has been tasked by the U.S. Environmental Protection Agency (EPA), Region VIII, under Technical Direction Document #9809-0014, to conduct ambient air monitoring during removal of contaminated soils, and to document various stages of the removal and landscape of properties with photographs during a residential soil removal at the Vasquez Boulevard/I-70 site in the City and County of Denver, Colorado. The field work was completed from October 13 to November 23, 1998.

Sampling consisted of ambient air monitoring around properties where EPA removed soil. This Removal Summary Report (RSR) summarizes observations and air monitoring data collected during the removal of contaminated soils.

2.0 OBJECTIVES

The objective of this RSR is to ensure that the data generated during this removal are adequate to document that the engineering controls used were effective in reducing the risk for airborne contamination migration.

This ambient air monitoring was performed to document that removal actions have not distributed additional airborne contamination at residential and public locations at the Vasquez Boulevard/I-70 site where elevated levels of arsenic and/or lead in the soil have been documented.

3.0 BACKGROUND

The Colorado Department of Public Health and the Environment (CDPHE) collected 25 soil samples from residential yards in Elyria and Swansea on July 16, 1997 (Colorado Department of Public Health and the Environment (CDPHE) 1998). Samples were collected from residential yards located immediately north of the elevated portion of I-70 in the Swansea and Elyria neighborhoods of the City and County of Denver, Colorado. More specifically, the samples were collected from the 4600 and 4700 blocks of Williams Street, Race Street, and Vine Street; the 4600 block of Franklin Street and Baldwin Court; the 4700 block of Fillmore Street and Gaylord Street; and the 4800 block of St. Paul Street. These 25 soil samples indicated levels of arsenic ranging from 12 milligrams per kilogram (mg/kg) to 1,300 mg/kg, cadmium ranging from 1.8 mg/kg to 12 mg/kg, and lead ranging from 61 mg/kg to 660 mg/kg. With the discovery of these

concentrations, the CDPHE asked the EPA to undertake an investigation of the extent of potential arsenic and lead present in surrounding soils.

Phase I of field sampling occurred on March 2, 1998, and from April 14 to April 28, 1998. Personnel from the Superfund Technical Assessment and Response Team (START) and Response Engineering and Analytical Contract (REAC) collected a total of 2,363 surface soil samples (0 to 2 inches below ground surface (bgs)), 1,096 depth soil samples (6 to 10 inches bgs), and 91 field replicates, totaling 3,550 soil samples from a total of 1,152 properties in the neighborhoods of Elyria and Swansea in North Denver averaging approximately 3.1 soil samples per property sampled.

The data generated from Phase I indicated that arsenic and lead contamination is widespread with little or no pattern to its geographic distribution. A total of 46 properties had elevated arsenic concentrations greater than or equal to 400 mg/kg and/or lead concentrations greater than or equal to 2,000 mg/kg. A total of 248 properties had arsenic concentrations ranging from 70 mg/kg to 399 mg/kg and/or lead concentrations ranging from 500 mg/kg to 1,999 mg/kg. Elevated concentrations of arsenic and lead were detected along the southern boundaries of the primary project area. Please refer to the final Phase I Sampling Analysis Report for North Denver Soils for more detail.

The objectives of Phase II sampling included the initial screening of these properties along the southern border as well as confirming the presence of elevated levels of arsenic and lead from the 46 properties detected during Phase I sampling. Since the predominant land use immediately south of 38th Avenue is primarily residential, the boundaries for this investigation were expanded to the south to 35th Avenue as part of Phase II. Additionally, a small portion of Globeville, located south of I-70 and west of I-25, was also sampled during Phase II, as well as properties (previously unsampled where access had been granted) within the original site boundaries.

Phase II sampling was conducted from July 20 to August 10, 1998. Personnel from START and REAC collected a total of 936 surface soil grab samples (0 to 2 inches bgs), 453 depth soil grab samples (6 to 10 inches bgs for first time samples or 12 to 16 inches bgs for confirmation samples), 117 surface soil composite samples (five-point composite samples from 0 to 2 inches bgs), and 79 field replicates, totaling 1,585 soil samples from a total of 372 properties in the neighborhoods of Elyria and Swansea in North Denver, Colorado, averaging approximately 4.3 soil samples per property sampled.

The data from Phase II indicated that arsenic and lead contamination is widespread with little or no pattern to its geographic distribution, as indicated in Phase I sampling. For properties where first time sampling occurred, 9 properties had elevated arsenic concentrations greater than or equal to 400 mg/kg and/or lead concentrations greater than or equal to 2,000 mg/kg. A total of 110 properties had arsenic concentrations ranging from 70 mg/kg to 399 mg/kg and/or lead concentrations ranging from 500 mg/kg to 1,999 mg/kg.

For properties where confirmation sampling occurred (Phase I and Phase II properties with arsenic greater than or equal to 400 mg/kg and/or lead greater than or equal to 2,000 mg/kg), a total of 28 properties had arsenic concentrations, in one or more samples collected, with greater than or equal to 450 mg/kg. Of these 28 properties, a total of 21 properties had arsenic greater than or equal to 450 mg/kg from composite samples of the front yard and/or the backyard. There were no properties within this arsenic/lead concentration range with only lead contamination. A total of 24 properties had arsenic concentrations, in one or more samples collected, ranging from 70 mg/kg to 449 mg/kg and/or lead concentrations ranging from 500 mg/kg to 1,999 mg/kg. The owners of these 24 properties were approached regarding the removal of contaminated soils. The owners of 18 of the 24 properties voluntarily gave permission to the EPA to remove contaminated soils and re-landscape the property. Removal on these 18 properties was conducted in October and November, 1998, and is the focus of this report.

4.0 FIELD OPERATIONS

Field operations were conducted on a property-by-property basis. Prior to the excavation of contaminated soil, Environmental Chemical Corporation (ECC) personnel would clear and remove specified shrubs, trees, and debris from the property. Portions of fences were removed from the property to allow for the entrance and movement of excavation equipment. These fences and other items being returned to the property were stored at a secure storage area located at 4800 Columbine Street. Upon completion of all clearing work, excavation of contaminated soils commenced. START placed ambient air monitors on the north, south, east, and west fence lines of each property only during the excavation of contaminated soils as described in the final Sampling and Analysis Plan (SAP) dated November 6, 1998. These ambient air monitors were operated according to START Technical Standard Operating Procedures (TSOPs), the MIE Model Data Real-time Aerosol Monitors (Data RAM) instruction manual, the MIE Mini RAM Personal Monitor Model PDM-3 (Mini RAM) instruction manual, and according to the site specific health and safety plan (URS Operating Services, Inc. (UOS) 1995; MIE, Inc. 1990; MIE, Inc. 1996).

Observations and monitoring results are discussed on a property-by-property basis in Section 5.0, Removal Observations and Particulate Monitoring.

4.1 SAMPLING DESIGN, LOCATIONS, COLLECTION, AND RATIONALE

Ambient air monitoring was conducted during removal of contaminated soils using a combination of Data RAM and Mini RAM ambient air monitors. Both air monitors provided data for total suspended particulates (TSP). The Data RAM monitor provided direct and continuous readouts as well as electronic documentation of the monitoring data. Monitoring data recorded by the Data RAM included the number of logged points, start time and date, total run elapsed time, averaging time, data logging averaging period, calibration factor, Short Term Exposure Limits (STEL) concentration, STEL occurrence time after start, overall average concentration, and overall maximum and minimum concentrations with data point number. The Mini RAM provided direct and continuous readouts as well as overall average concentrations during the monitoring period.

Three Data RAM monitors were stationed along the downwind and cross wind directions. The monitor locations were determined by the placement of non-data-logging wind speed and direction monitors at each respective property in lieu of a wind sock. One Mini RAM was stationed along the upwind fence line of the property where soil removal was being conducted.

In addition to perimeter fence line air monitoring, a meteorological station was set up at the equipment staging facility located at 4800 Columbine Street. This station was equipped for the monitoring and data logging of area wind speed and direction. Graphical wind roses depicting the percentage of time based on directional increments of 10 degrees are presented in Appendix C. Meteorological data were collected at two minute intervals from October 22 to November 23, 1998. All Data RAM monitoring data and meteorological files are included in Appendix E (CD ROM).

4.2 ANALYTICAL PARAMETERS

Ambient air samples were monitoring for real-time TSP with a detection limit of 0.1 milligrams per cubic meter ($\mu\text{g}/\text{m}^3$) average every 10 seconds with the MIE Data RAM and a detection limit of 1.0 $\mu\text{g}/\text{m}^3$ average every 10 seconds with the Mini RAM. Discussion and ambient air monitoring TSP results are located in Section 5.0, Removal Observations and Particulate Monitoring (TSP).

The Data RAM collected particulates (after real-time monitoring) on a cassette particulate filter cartridge for definitive laboratory analysis. Cassette particulate filters were collected for each Data RAM for each property during excavation only. The cassette particulate filters were analyzed using SW846 method 6010B. Project-specific health-based benchmarks were based on the National Ambient Air Quality Standard (NAAQS) value for lead ($1.5 \mu\text{g}/\text{m}^3$). Values based on chronic exposure and cancer risks were established by an EPA toxicologist and set as follows: arsenic ($0.2 \mu\text{g}/\text{m}^3$) and cadmium ($3.0 \mu\text{g}/\text{m}^3$) (U.S. Environmental Protection Agency (EPA) 1998). Parameters necessary for the analysis of each filter cassette were available from the downloaded data from each respective Data RAM (elapsed run time (start and stop time) and calibrated flow rate). Discussion and laboratory results related to the definitive laboratory analysis of particulate cassette filters are located in Section 6.0, Laboratory Analysis on Particulate Filters.

5.0 REMOVAL OBSERVATIONS AND PARTICULATE MONITORING

During the removal of contaminated soils, a total of three Data RAM monitors were stationed along the downwind and cross wind fence lines and one Mini RAM ambient air monitor was placed along the upwind fence line of the removal property. Wind direction was determined by the placement of non-data-logging wind speed and direction monitors at each respective property in lieu of a wind sock. One Mini RAM was stationed along the upwind fence line of the property where soil removal was being conducted.

On a total of 6 of 187 Data RAM monitoring days, the Data RAM programming failed, resulting in no monitoring data for that particular fence line direction of the specified property. These occasions are noted in the property specific tables below. Mini RAM data were read directly in the field and manually entered into the field log books. The field log book for the monitoring period dating from November 16 and 17, 1998, was inadvertently lost by START personnel. Data RAM monitoring for this period, however was not lost and was successfully downloaded and has been incorporated into the property specific tables below. Property specific tables below are displayed chronologically.

From October 15 through 29, 1998, START maintained one Data RAM and one Mini RAM along the western fence line of a total of three properties (2000 east 47th Avenue, 4691 Vine Street, and 4771 Vine Street) during removal of contaminated soil (Tables 5.1, 5.3, and 5.6). This enabled the EPA and START to view the correlation of Mini RAM versus Data RAM data. A total of nine removal days were monitored with both instruments along the west fence line, resulting in the Mini RAM being higher than the Data RAM

on all occasions. Mini RAM monitoring results ranged from 2.3 to 8.3 times higher than the respective days Data RAM, with an average of 4.3 times higher than the respective days Data RAM data.

It is important to note that on Mini RAM monitoring days, where TSP results were greater than $200 \mu\text{g}/\text{m}^3$, wind direction was checked to confirm that the location of the Mini RAM was indeed located upwind of the removal property. While wind directions were monitored at each respective property for the placement of monitoring instruments, the data logging meteorological station was placed at 4800 Columbine Street. Fluctuations of wind direction caused by the suburban setting are not taken into account on a property-by-property basis with the potential for changes between 4800 Columbine Street where surrounding land is primarily open and at a removal property where there are likely numerous trees and surrounding residences. A total of 12 Mini RAM monitoring days exhibited TSP results greater than $200 \mu\text{g}/\text{m}^3$. Of these 12 Mini RAM monitoring days, 3 Mini RAM monitoring days exhibited TSP results greater than $860 \mu\text{g}/\text{m}^3$ ((Mini RAM average 4.3 times greater than Data RAM) * ($200 \mu\text{g}/\text{m}^3$)). These three Mini RAM monitoring days experienced wind directions primarily to the south/southwest (Appendix C).

All Data RAM monitoring data and meteorological files are included in Appendix E (CD ROM).

TABLE 5.1
Total Suspended Particulate Monitoring - 2000 East 47th Avenue

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	Data Ram / Mini RAM Comparison	
				West / Hr:Min:Sec	West / Hr:Min:Sec
10/13/98	37.6 / 6:29:40	32.3 / 6:20:50	N/C	N/C	120 / 6:50 (MR)
10/14/98	45.5 / 6:32:10	35.5 / 6:36:50	N/C	N/C	130 / 6:30 (MR)
10/15/98	152.8 / 5:34:30	61.4 / 5:51:50	102.9 / 5:31:40	50.1 / 3:59:00	180 / 4:00 (MR)
10/16/98	56.6 / 6:17:50	75.4 / 6:11:30	200.1 / 6:14:30	65.8 / 6:06:40	260 / 6:00 (MR)
10/17/98	Weekend - No excavation/monitoring				
10/18/98	Weekend - No excavation/monitoring				
10/19/98	8.1 / 7:07:10	29.5 / 7:18:50	164.6 / 7:13:10	29.9 / 6:57:30	220 / 6:00 (MR)

N/C - Data RAM not collecting due to programming errors
 MR- Mini RAM - No data logging capability, direct read only.

TABLE 5.2
Total Suspended Particulate Monitoring - 4711 Thompson Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/13/98	32.1 / 6:28:30	17.5 / 5:53:40	24.9 / 6:21:00	130 / 6:50 (MR)
10/14/98	22.3 / 5:12:40	28.2 / 6:34:00	43.3 / 6:35:10	120 / 8:35 (MR)
10/15/98	51.1 / 7:15:50	44.2 / 7:09:40	62.9 / 6:46:40	140 / 4:30 (MR)
10/16/98	48.3 / 6:46:30	41.0 / 6:41:50	60.4 / 6:44:40	190 / 6:55 (MR)
10/17/98	Weekend - No excavation/monitoring			
10/18/98	Weekend - No excavation/monitoring			
10/19/98	29.3 / 3:59:30	24.0 / 3:52:30	26.0 / 3:54:30	60 / 4:09 (MR)

N/C - Data RAM not collecting due to programming errors
 MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

TABLE 5.3
Total Suspended Particulate Monitoring - 4691 Vine Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	Data RAM / Mini RAM Comparison	
				West / Hr:Min:Sec	West / Hr:Min:Sec
10/20/98	6.5 / 6:31:20	13.3 / 6:31:00	172.3 / 6:30:50	83.3 / 6:31:00	190 / 6:30 (MR)
10/21/98	36.3 / 7:19:30	43.7 / 7:22:40	198.5 / 7:18:40	113.6 / 7:21:30	280 / 7:00 (MR)
10/22/98	68.4 / 4:11:30	41.4 / 4:04:50	186.6 / 4:02:20	60.8 / 4:03:30	210 / 4:00 (MR)

TABLE 5.4
Total Suspended Particulate Monitoring - 4940 and 4936 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/20/98	15.0 / 8:33:20	18.5 / 8:29:10	28.6 / 9:02:40	60 / 8:45 (MR)
10/21/98	36.7 / 9:00:50	29.9 / 9:04:00	58.2 / 8:41:40	160 / 9:15 (MR)
10/22/98	43.5 / 8:04:30	36.8 / 8:08:10	52.5 / 8:04:50	160 / 6:45 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

TABLE 5.5
Total Suspended Particulate Monitoring - 4771 Vine Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	Data RAM / Mini RAM Comparison	
				West / Hr:Min:Sec	West / Hr:Min:Sec
10/26/98	47.9 / 7:40:00	98.7 / 7:41:20	23.2 / 7:40:10	54.3 / 7:39:10	210 / 7:40 (MR)
10/27/98	98.3 / 7:42:30	99.1 / 5:29:00	38.4 / 7:40:40	101.5 / 5:30:30	350 / 5:30 (MR)
10/28/98	No excavation work due to muddy and windy conditions				
10/29/98	56.0 / 3:58:00	16.6 / 3:52:10	1.3 / 3:57:50	19.3 / 4:03:10	160 / 4:00 (MR)

TABLE 5.6
Total Suspended Particulate Monitoring - 5195 St. Paul Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/26/98	36.4 / 6:12:00	26.0 / 5:59:10	35.5 / 6:15:40	290 / 7:45 (MR)
10/27/98	52.8 / 8:26:40	38.8 / 8:18:50	46.7 / 8:22:50	650 / 9:00 (MR)
10/28/98	No excavation work due to muddy and windy conditions			
10/29/98	16.2 / 8:27:30	8.5 / 8:34:10	N/C	410 / 8:56 (MR)
10/30/98	18.6 / 7:37:50	31.3 / 7:38:50	44.7 / 6:02:50	490 / 7:44 (MR)

N/C- Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

TABLE 5.7
Total Suspended Particulate Monitoring - 4760 St Paul Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min:Sec
10/30/98	N/C	42.4 / 6:04:30	25.1 / 4:57:50	33.1 / 6:06:10
10/31/98	Weekend - No excavation/monitoring			
11/1/98	Weekend - No excavation/monitoring			
11/2/98	202.9 / 1:55:40	32.4 / 3:43:50	18.3 / 3:45:00	25.6 / 3:41:50
11/3/98	26.9 / 6:07:30	36.7 / 8:31:20	27.3 / 8:28:10	23.2 / 8:32:30

N/C - Data RAM not collecting due to programming errors

TABLE 5.8
Total Suspended Particulate Monitoring - 4980 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/2/98	21.5 / 1:54:10	40.6 / 2:06:20	186.6 / 1:59:30	187 / 2:00 (MR)
11/3/98	21.5 / 7:17:20	28.5 / 7:11:00	78.6 / 7:13:00	930 / 5:35 (MR)**

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** Windrose data indicate wind direction to south/southwest.

TABLE 5.9
Total Suspended Particulate Monitoring - 4850 Adams Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/4/98	50.1 / 7:22:50	39.5 / 7:06:00	50.6 / 7:13:00	810 / 7:02 (MR)
11/5/98	61.6 / 7:30:30	81.7 / 7:22:50	82.5 / 7:41:10	1,080 / 7:55 (MR)**

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** Windrose data indicate wind direction to south/southwest.

TABLE 5.10
Total Suspended Particulate Monitoring - 4715 St. Paul Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/5/98	31.6 / 7:27:10	82.8 / 8:00:40	42.1 / 7:56:40	850 / 8:05 (MR)
			27.4 / 7:52:20	
11/6/98	56.4 / 7:47:10	91.1 / 8:11:30	57.4 / 8:03:40	820 / 8:20 (MR)
			48.4 / 8:10:20	
11/7/98	Weekend - No excavation/monitoring			
11/8/98	Weekend - No excavation/monitoring			
11/9/98	15.3 / 2:54:10	17.0 / 2:57:40	12.1 / 2:51:00	700 / 2:55 (MR)
			12.1 / 2:50:10	
11/10/98	7.9 / 0:47:30	19.6 / 0:54:00	4.1 / 0:52:50	*MR
			11.9 / 0:51:40	
11/11/98	36.8 / 4:38:00	48.2 / 4:39:40	41.8 / 4:36:10	10 / 4:25 (MR)
			40.4 / 4:36:40	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not recorded in log book for one hour run time.

TABLE 5.11
Total Suspended Particulate Monitoring - 4809 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/9/98	12.0 / 1:04:30	70.8 / 2:12:20	17.7 / 2:33:00	1,150 / 2:06 (MR)**
11/10/98	21.1 / 0:54:40	26.8 / 0:57:20	31.3 / 0:53:30	20 / 0:51 (MR)
11/11/98	58.2 / 3:25:30	63.9 / 3:22:30	54.3 / 3:22:10	50 / 3:12 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** - Windrose data indicate wind direction to south/southwest.

TABLE 5.12
Total Suspended Particulate Monitoring - 4690 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/12/98	23.9 / 8:45:20	41.3 / 8:40:00	92.1 / 8:41:10	30 / 9:00 (MR)
11/13/98	8.8 / 1:42:40	27.9 / 1:54:00	45.8 / 1:39:00	*MR

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not recorded in log book for 1.5 hour run time.

TABLE 5.13
Total Suspended Particulate Monitoring - 3818 Madison Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/12/98	19.4 / 7:55:00	19.1 / 7:51:30	5.8 / 7:43:00	10 / 7:55 (MR)
			4.7 / 7:42:40	
11/13/98	14.1 / 7:03:30	14.8 / 7:05:30	17.0 / 7:20:50	10 / 7:10 (MR)
			15.9 / 7:21:20	

N/C - Data RAM not collecting due to programming errors

MR - Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

TABLE 5.14
Total Suspended Particulate Monitoring - 4641 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/16/98	34.8 / 7:32:20	18.1 / 7:38:10	20.4 / 7:43:40	*MR
			27.6 / 7:44:20	
11/17/98	25.0 / 7:08:30	23.4 / 7:13:40	37.6 / 7:18:00	*MR
			29.1 / 7:17:30	

N/C - Data RAM not collecting due to programming errors

MR - Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not reported due to lost log book for entries on 11/16/98 and 11/17/98.

TABLE 5.15
Total Suspended Particulate Monitoring - 3825 Adams Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/17/98	17.5 / 7:56:50	18.7 / 8:01:00	73.1 / 8:00:40	*MR
11/18/98	N/C	7.4 / 7:36:30	8.4 / 7:34:10	30 / 7:45 (MR)
11/19/98	33.1 / 3:18:00	31.2 / 3:15:40	30.0 / 3:17:20	280 / 3:20 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not reported due to lost log book for entries on 11/17/98.

TABLE 5.16
Total Suspended Particulate Monitoring - 4044 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/19/98	29.3 / 7:42:30	28.1 / 7:59:30	62.7 / 7:47:00	70 / 8:00 (MR)
			57.4 / 7:42:20	
11/20/98	15.8 / 8:09:50	11.5 / 7:51:20	95.3 / 8:17:50	100 / 8:30 (MR)
			86.9 / 8:11:50	
11/21/98	Weekend - No excavation/monitoring			
11/22/98	Weekend - No excavation/monitoring			
11/23/98	175.8 / 0:25:30	24.5 / 3:07:30	96.7 / 2:50:10	10 / 2:55 (MR)
			90.2 / 2:49:40	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

TABLE 5.17
Total Suspended Particulate Monitoring - 3535 Humboldt Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/20/98	20.4 / 5:42:10	47.3 / 5:52:40	14.6 / 5:46:40	10 / 6:00 (MR)
11/21/98	Weekend - No excavation/monitoring			
11/22/98	Weekend - No excavation/monitoring			
11/23/98	32.8 / 8:15:30	36.7 / 8:19:50	36.7 / 8:15:00	10 / 8:20 (MR)

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

6.0 LABORATORY ANALYSIS ON PARTICULATE FILTERS

In addition to monitoring for real-time TSP with a detection limit of $0.1 \mu\text{g}/\text{m}^3$ average every 10 seconds, the MIE Data RAM collected particulates (after real-time monitoring) on a cassette particulate filter cartridge for definitive laboratory analysis. Project-specific health-based benchmarks for this project were based on the National Ambient Air Quality Standard (NAAQS) value for lead ($1.5 \mu\text{g}/\text{m}^3$). Values based on chronic exposure and cancer risks were established by an EPA toxicologist and set as follows: arsenic ($0.2 \mu\text{g}/\text{m}^3$) and cadmium ($3.0 \mu\text{g}/\text{m}^3$) (U.S. Environmental Protection Agency (EPA) 1998).

Initially, one cassette particulate filter was collected from each Data RAM for each day when a property was undergoing excavation. Analysis of these particulate filter cassettes resulted in detection limits exceeding project-specific health based benchmarks specified in the Final SAP dated November 6, 1998 (UOS 1998). Laboratories were changed from Quanterra Labs in Lakewood, Colorado, to Paragon Analytics in Fort Collins, Colorado, on October 18, 1998, and lowered detection limits by digesting the entire filter rather than only a portion of the filter as Quanterra Labs had done. While this change of laboratories resulted in a reduction in detection limits, the project-specific health-based benchmarks were still lower than the existing detection limits. It was then decided to collect one filter cassette per property per Data RAM (two to three days of excavation of contaminated soils). This then enabled two to three times the air flow to pass through the filter cassette, thus lowering the detection limit per sample to a value below the project-specific health

based benchmarks. Detection limits were reported by the instrument detection limit rather than the reporting limit. Final detection limits can be found in Table 6.6 of this text. All laboratory analytical data for particulate filter cassettes were validated by Tech Law, Inc. of Lakewood, Colorado. Analytical data and validation reports can be found in Appendix D, under separate cover.

Air monitoring analytical results indicated that engineering controls had effectively limited fugitive dust emissions. UOS personnel were directed by the EPA OSC to continue to collect particulate filter cassette cartridges and store them under chain-of-custody, rather than send them in for laboratory analysis. These particulate cassette filters will remain under chain-of-custody for the six month hold time or they will be sent in for analysis as specified by the EPA OSC.

TABLE 6.1
Particulate Filter Analysis - 2000 East 47th Avenue

Date	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.											
	North			South			East			West		
	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb
10/15/98	5.97 U	0.29 U	2.99 U	5.68 U	0.28 U	2.84 U	6.03 U	0.30 U	3.02 U	N/C	N/C	N/C
10/16/98	5.29 U	0.26 U	2.65 U	5.38 U	0.27 U	2.69 U	4.85 U	0.24 U	2.43 U	N/C	N/C	N/C
10/19/98	0.35 U	0.02 U	0.12 U	0.33 U	0.02 U	0.11 U	0.32 U	0.02 U	0.11 U	N/C	N/C	N/C

TABLE 6.2
Particulate Filter Analysis - 4711 Thompson Court

Date	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.											
	North			South			East			West		
	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb
10/15/98	4.60 U	0.23 U	2.30 U	5.66 U	0.28 U	2.83 U	10.3 U	0.51 U	5.13 U	N/C	N/C	N/C
10/16/98	4.92 U	0.25 U	2.46 U	4.98 U	0.25 U	2.49 U	4.94 U	0.25 U	2.47 U	N/C	N/C	N/C
10/19/98	0.62 U	0.04 U	0.21 U	0.65 U	0.04 U	0.22 U	0.64 U	0.04 U	0.21 U	N/C	N/C	N/C

U - Not detected at reported concentration.

J - The associated numerical value is an estimated quantity between the instrument detection limit and the quantitation limit.

N/C - Filter cassette not collected due to Mini RAM unable to collect sample.

TABLE 6.3
Particulate Filter Analysis - 4940 and 4936 Steele Street

Date	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.											
	North			South			East			West		
	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb
10/20/98	0.29 U	0.02 U	0.10 U	0.29 U	0.02 U	0.10 U	0.28 U	0.02 U	0.09 U	N/C	N/C	N/C
10/21/98	0.28 U	0.02 U	0.09 U	0.28 U	0.02 U	0.09 U	0.29 U	0.02 U	0.19 J	N/C	N/C	N/C
10/22/98	0.27 U	0.02 U	0.09 U	0.27 U	0.02 U	0.17 J	0.27 U	0.02 U	0.09 U	N/C	N/C	N/C

TABLE 6.4
Particulate Filter Analysis - 4691 Vine Street

Date	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.											
	North			South			East			West		
	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb	As	Cd	Pb
10/20/98	0.38 U	0.03 U	0.13 U	0.37 U	0.02 U	0.12 U	0.35 U	0.02 U	0.14 J	N/C	N/C	N/C
10/21/98	0.34 U	0.02 U	0.11 U	0.32 U	0.02 U	0.11 U	0.31 U	0.02 U	0.10 U	N/C	N/C	N/C
10/22/98	0.52 U	0.05 J	0.17 U	0.53 U	0.04 U	0.20 J	0.54 U	0.04 U	0.18 U	N/C	N/C	N/C

TABLE 6.5
Particulate Filter Analysis - 4940 Steele Street

Element	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.			
	North	South	East	West
Arsenic	0.27 U	0.27 U	0.27 U	N/C
Cadmium	0.02 U	0.02 U	0.02 U	N/C
Lead	0.09 U	0.17 J	0.09 U	N/C

U - Not detected at reported concentration.

J - The associated numerical value is an estimated quantity between the instrument detection limit and the quantitation limit.

N/C - Filter cassette not collected due to Mini RAM unable to collect sample.

TABLE 6.6
Particulate Filter Analysis - 4771 Vine Street

Element	Concentrations are in $\mu\text{g}/\text{m}^3$ based on calibrated flow rate and total elapsed run time.			
	South	East	East Duplicate	West
Arsenic	0.13 U	0.11 U	0.11 U	0.13 U
Cadmium	0.008 U	0.007 U	0.007 U	0.008 U
Lead	0.05 U	0.04 J	0.04 U	0.05 J

U - Not detected at reported concentration.

J - The associated numerical value is an estimated quantity between the detection limit and the quantitation limit.

N/C - Filter cassette not collected due to Mini RAM unable to collect sample.

7.0 CONFIRMATORY SOIL SAMPLING ON REMOVAL PROPERTIES

Confirmatory soil sampling was conducted on three properties where Phase I and /or Phase II sampling had elevated detections of arsenic and/or lead at the 12 inch bgs sampling interval. These properties included 4691 Vine Street with arsenic at 500 mg/kg, 4771 Vine Street with arsenic at 390 mg/kg, 4850 Adams Street with arsenic at 460 mg/kg, and 4044 Steele Street with arsenic at 810 mg/kg. All other properties undergoing soil removal in October and November 1998, had grab soil samples collected from the 12 inch bgs interval with arsenic results less than 200 mg/kg and lead results less than 900 mg/kg.

Standard protocol for confirmatory sampling after soil removal was to collect one five-point composite sample from the front yard and one five-point composite sample from the back yard. Each five-point composite sample was collected by placing an imaginary "X" over the front or back yard. One sample point was collected from each end of the "X" and one point from the middle point, thus resulting in a five-point composite sample. This five-point sample was collected after soil excavation was completed and before any clean topsoil had been placed. Soil samples were analyzed using XRF (Spectrace 9000) set up in the UOS Operations Center located at 401 Park Avenue West. Standard Operating Procedures (SOPs) for the XRF Spectrace 9000 may be found in the Environmental Response Teams (ERT) SOP #1713, Spectrace 9000 Field Portable X-Ray Fluorescence Operating Procedures located in the Final SAP for the North Denver Residential Soils site (Environmental Response Team (ERT) 1995; UOS 1998).

Samples were collected from the front and back yards of each property with the exception that 4691 Vine Street only had a backyard composite sample collected due to the inadvertent placement of clean topsoil prior to the sample collection. After confirmatory soil samples were collected, a minimum of 12 inches of clean topsoil was graded in place and revegetated as specified by communication between the property owner and the EPA OSC.

Additionally, backfill topsoil was sampled by START and analyzed by ACZ Laboratories, Inc. of Steamboat Springs, Colorado, on two separate occasions. Topsoil requirements have been listed after the respective analytical parameter. Samples were analyzed for total metals, organic matter (2% - 20%), pH (5.5 - 8.5), soluble salts (>0.4 millimos/cm), nitrate/nitrite (>20 parts per million (ppm), phosphorus (>10 ppm), available potassium (>120 ppm), USDA soil type, particle size greater than 1 inch (none), particle size greater than 2 millimeter (0% - 20%). All analyses of backfill topsoil met the above stated requirements. Analytical data related to these samples may be found in Appendix D (under separate cover).

TABLE 7.1
Confirmatory Depth Soil Sampling Results (XRF)

Address	Arsenic	Q	Cadmium	Q	Lead	Q
4771 Vine - Front Yard	64	J	94	U	150	
4771 Vine - Back Yard	59	U	94	U	590	
4691 Vine - Back Yard	53	J	94	U	200	
4850 Adams - Front Yard	67	J	94	U	36	J
4850 Adams - Back Yard	60	J	94	U	64	J
4044 Steele - Front Yard	44	U	170	U	110	J
4044 Steele - Back Yard	140	J	170	U	65	J

J - The associated numerical value is an estimated quantity between the detection limit and the quantitation limit.
 U - The analyte was not detected above the detection limit. The detection limit is reported.

8.0 LIST OF REFERENCES

Colorado Department of Public Health and Environment (CDPHE). 1998. XRF and ICP Analytical Data for 25 Soil Samples Collected in the Elyria and Swansea Neighborhoods. Received on January 5, 1998.

Environmental Response Team (ERT). 1995. "Spectrace 9000 Field Portable X-Ray Fluorescence Operating Procedures." January 26, 1995.

MIE, Inc. 1990. Mini RAM Personal Monitor Model PDM-3 Operations Manual. MIE, Inc., 7 Oak Park, Bedford, Massachusetts, 01730.

MIE, Inc. 1996. Data RAM Instruction Manual. MIE, Inc., 7 Oak Park, Bedford, Massachusetts, 01730.

U.S. Environmental Protection Agency (EPA). 1998. Memorandum from Chris Weis to Peter Stevenson regarding recommended air levels for arsenic, cadmium, and lead. October 29, 1998.

U.S. Environmental Protection Agency (EPA). 1998. Memorandum from Chris Weis to Peter Stevenson regarding recommended air levels for arsenic, cadmium, and lead. October 29, 1998.

URS Operating Services, Inc. (UOS). 1995. START Standard Operating Procedures, Volume 4: Technical Standard Operating Procedures. December 1995.

URS Operating Services, Inc. (UOS). 1996. "Field Sampler's Guide for Sample Collection and Documentation." August 1996.

URS Operating Services, Inc. (UOS). 1997. "Draft Emergency Response Program (ERP) Generic Quality Assurance Project Plan for the Superfund Technical Assessment and Response Team (START), EPA Region VIII." July 31, 1997.

URS Operating Services, Inc. (UOS). 1998. "Final Sampling and Analysis Plan (SAP) for the Vasquez Boulevard and I-70 Site." July 20, 1998.

APPENDIX A

Photo Log

Color Photo(s)

**The following pages contain color
that does not appear in the
scanned images.**

**To view the actual images, please
contact the Superfund Records
Center at (303) 312-6473.**



PHOTO 1

Traffic control at 2000 East 47th Avenue during loading of excavated soil.



PHOTO 2

Dust suppression during removal of contaminated soil at 2000 East 47th Avenue.



PHOTO 3

Dust suppression during removal of contaminated soil at 2000 East 47th Avenue.



PHOTO 4

Excavation of contaminated soil at 2000 East 47th Avenue.



PHOTO 5

Excavation of contaminated soil at 2000 East 47th Avenue.



PHOTO 6

Clean fill has been placed in the back yard (foreground of photo) and contaminated soil has been placed in the side/front yard for loading/deposit at 2000 East 47th Avenue.



PHOTO 7

Excavation of contaminated soil at 2000 East 47th Avenue.



PHOTO 8

Data Ram monitoring and Mini Ram monitoring at the west boundary for 2000 East 47th Avenue.



PHOTO 10

Excavation of contaminated soil at 4771 Vine Street.
Note removal by hand along the north side of the property.



PHOTO 9

Excavation of contaminated soil at 4771 Vine Street.



PHOTO 11
Excavated area in the backyard at 4771 Vine.



PHOTO 12
Excavated yard at 4760 St. Paul Court.



PHOTO 13
Excavated side yard at 4760 St. Paul Court.



PHOTO 14
Excavated back yard at 4760 St. Paul Court.

APPENDIX B

Data RAM Summary Pages

TABLE 5.1
Total Suspended Particulate Monitoring - 2000 East 47th Avenue

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	Data Ram / Mini RAM Comparison	
				West / Hr:Min:Sec	West / Hr:Min:Sec
10/13/98	37.6 / 6:29:40	32.3 / 6:20:50	N/C	N/C	120 / 6:50 (MR)
10/14/98	45.5 / 6:32:10	35.5 / 6:36:50	N/C	N/C	130 / 6:30 (MR)
10/15/98	152.8 / 5:34:30	61.4 / 5:51:50	102.9 / 5:31:40	50.1 / 3:59:00	180 / 4:00 (MR)
10/16/98	56.6 / 6:17:50	75.4 / 6:11:30	200.1 / 6:14:30	65.8 / 6:06:40	260 / 6:00 (MR)
10/17/98	Weekend - No excavation/monitoring				
10/18/98	Weekend - No excavation/monitoring				
10/19/98	8.1 / 7:07:10	29.5 / 7:18:50	164.6 / 7:13:10	29.9 / 6:57:30	220 / 6:00 (MR)

N/C - Data RAM not collecting due to programming errors
MR- Mini RAM - No data logging capability, direct read only.

2000 East 47th Avenue - South Summary

DataRAM ID# 2458 - October 13, 1998
Tag Number 1
Number of logged points..... 2285
Start time (hr:min:sec day/mon/yr)... 09:01:06 13/10/98
Elapsed time (hr:min:sec)..... 06:20:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 32.3
Overall MaxConc (ug/m3)..... 1665.7 at Point#...1802 Unknown
Overall MinConc (ug/m3)..... 6.8 at Point#...1974

DataRAM ID# 2458 - October 14, 1998
Tag Number 2
Number of logged points..... 2381
Start time (hr:min:sec day/mon/yr)... 08:41:40 14/10/98
Elapsed time (hr:min:sec)..... 06:36:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 35.5
Overall MaxConc (ug/m3)..... 1177.3 at Point#...682 Appx 20 seconds total at 1,177 - Unknown cause
Overall MinConc (ug/m3)..... 4.1 at Point#...1181

DataRAM ID# 2458 - October 15, 1998
Tag Number 3
Number of logged points..... 2111
Start time (hr:min:sec day/mon/yr)... 08:23:53 15/10/98
Elapsed time (hr:min:sec)..... 05:51:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 61.4
Overall MaxConc (ug/m3)..... 1617.0 at Point#...1304 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 16, 1998
Tag Number 1
Number of logged points..... 2229
Start time (hr:min:sec day/mon/yr)... 08:05:15 16/10/98
Elapsed time (hr:min:sec)..... 06:11:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 75.4
Overall MaxConc (ug/m3)..... 1126.4 at Point#...1593 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 19, 1998
Tag Number 1
Number of logged points..... 2633
Start time (hr:min:sec day/mon/yr)... 08:10:59 19/10/98
Elapsed time (hr:min:sec)..... 07:18:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 140.8
STEL occurrence after start (hr:min:sec)..... 01:23:54
Overall AvgConc (ug/m3)..... 29.5
Overall MaxConc (ug/m3)..... 2192.8 at Point#...1394 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

2000 East 4th Avenue - North Summary

DataRAM ID# 2458 - October 13, 1998
Tag Number 1
Number of logged points..... 2338
Start time (hr:min:sec day/mon/yr)... 08:57:41 13/10/98
Elapsed time (hr:min:sec)..... 06:29:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 37.6
Overall MaxConc (ug/m3)..... 2776.2 at Point#...678
Overall MinConc (ug/m3)..... 2.7 at Point#...1626

Approx 40 seconds total ranging from
740 to 2,776 - unknown cause

DataRAM ID# 2458 - October 14, 1998
Tag Number 2
Number of logged points..... 2353
Start time (hr:min:sec day/mon/yr)... 08:40:19 14/10/98
Elapsed time (hr:min:sec)..... 06:32:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 45.5
Overall MaxConc (ug/m3)..... 4621.9 at Point#...1729
Overall MinConc (ug/m3)..... 0.0 at Point#...1

Unknown

DataRAM ID# 2458 - October 15, 1998
Tag Number 3
Number of logged points..... 2007
Start time (hr:min:sec day/mon/yr)... 08:31:46 15/10/98
Elapsed time (hr:min:sec)..... 05:34:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 152.8
Overall MaxConc (ug/m3)..... 9976.0 at Point#...1233
Overall MinConc (ug/m3)..... 103.8 at Point#...398

Unknown

DataRAM ID# 2458 - October 16, 1998
Tag Number 1
Number of logged points..... 2267
Start time (hr:min:sec day/mon/yr)... 08:01:23 16/10/98
Elapsed time (hr:min:sec)..... 06:17:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 56.6
Overall MaxConc (ug/m3)..... 454.4 at Point#...1888
Overall MinConc (ug/m3)..... 0.0 at Point#...1

Unknown

DataRAM ID# 2458 - October 19, 1998
Tag Number 1
Number of logged points..... 2563
Start time (hr:min:sec day/mon/yr)... 08:10:49 19/10/98
Elapsed time (hr:min:sec)..... 07:07:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 32.0
STEL occurrence after start (hr:min:sec)..... 00:16:06
Overall AvgConc (ug/m3)..... 8.1
Overall MaxConc (ug/m3)..... 497.0 at Point#...2558
Overall MinConc (ug/m3)..... 0.0 at Point#...1

Unknown

2000 East 47th Avenue - East Summary

DataRAM ID# 2458 - October 15, 1998
Tag Number 3
Number of logged points..... 1990
Start time (hr:min:sec day/mon/yr)... 08:35:27 15/10/98
Elapsed time (hr:min:sec)..... 05:31:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 102.9
Overall MaxConc (ug/m3)..... 1682.1 at Point#...29
Overall MinConc (ug/m3)..... 4.1 at Point#...1

Approx 90 seconds total ranging from 213 to 1,682 - Unknown cause

DataRAM ID# 2458 - October 16, 1998
Tag Number 1
Number of logged points..... 2247
Start time (hr:min:sec day/mon/yr)... 08:02:42 16/10/98
Elapsed time (hr:min:sec)..... 06:14:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 200.1
Overall MaxConc (ug/m3)..... 746.1 at Point#...300
Overall MinConc (ug/m3)..... 0.0 at Point#...1

20 seconds total at 746 - unknown cause

DataRAM ID# 2458 - October 19, 1998
Tag Number 1
Number of logged points..... 2599
Start time (hr:min:sec day/mon/yr)... 08:09:59 19/10/98
Elapsed time (hr:min:sec)..... 07:13:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 191.7
STEL occurrence after start (hr:min:sec)..... 07:13:14
Overall AvgConc (ug/m3)..... 164.6
Overall MaxConc (ug/m3)..... 948.7 at Point#...2518
Overall MinConc (ug/m3)..... 0.0 at Point#...1

Unknown

2000 East 47th Avenue - West Summary

"DataRAM ID#2458" - October 15, 1998

"Tag Number 3"
"Number of logged points..... 1434"
"Start time (hr:min:sec day/mon/yr)... 10:06:03 15/10/98"
"Elapsed time (hr:min:sec)..... 03:59:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 50.1"
"Overall MaxConc (ug/m3)..... 247.3 at Point#...823"
"Overall MinConc (ug/m3)..... 0.0 at Point#...363"

20 seconds at 247 - unknown cause

"DataRAM ID# 2458" - October 16, 1998

"Tag Number 1"
"Number of logged points..... 2200"
"Start time (hr:min:sec day/mon/yr)... 08:08:39 16/10/98"
"Elapsed time (hr:min:sec)..... 06:06:40"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 65.8"
"Overall MaxConc (ug/m3)..... 1846.0 at Point#...2012"
"Overall MinConc (ug/m3)..... 28.4 at Point#...1657"

Unknown
}

"DataRAM ID# 2458" - October 19, 1998

"Tag Number 1"
"Number of logged points..... 2505"
"Start time (hr:min:sec day/mon/yr)... 08:11:31 19/10/98"
"Elapsed time (hr:min:sec)..... 06:57:30"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 53.1"
"STEL occurrence after start (hr:min:sec)..... 06:31:30"
"Overall AvgConc (ug/m3)..... 29.9"
"Overall MaxConc (ug/m3)..... 489.0 at Point#...797"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

Unknown

TABLE 5.2
Total Suspended Particulate Monitoring - 4711 Thompson Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/13/98	32.1 / 6:28:30	17.5 / 5:53:40	24.9 / 6:21:00	130 / 6:50 (MR)
10/14/98	22.3 / 5:12:40	28.2 / 6:34:00	43.3 / 6:35:10	120 / 8:35 (MR)
10/15/98	51.1 / 7:15:50	44.2 / 7:09:40	62.9 / 6:46:40	140 / 4:30 (MR)
10/16/98	48.3 / 6:46:30	41.0 / 6:41:50	60.4 / 6:44:40	190 / 6:55 (MR)
10/17/98	Weekend - No excavation/monitoring			
10/18/98	Weekend - No excavation/monitoring			
10/19/98	29.3 / 3:59:30	24.0 / 3:52:30	26.0 / 3:54:30	60 / 4:09 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



4771 Thompson Court - North Summary

DataRAM ID# 2458 - October 13, 1998
Tag Number 1
Number of logged points..... 2331
Start time (hr:min:sec day/mon/yr)... 09:15:49 13/10/98
Elapsed time (hr:min:sec)..... 06:28:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 32.1
Overall MaxConc (ug/m3)..... 982.8 at Point#...474 40 seconds total, conc ranging from 244 to 982 - unknown cause
Overall MinConc (ug/m3)..... 12.8 at Point#...1

DataRAM ID# 2458 - October 14, 1998
Tag Number 2
Number of logged points..... 1875
Start time (hr:min:sec day/mon/yr)... 11:40:17 14/10/98
Elapsed time (hr:min:sec)..... 05:12:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 22.3
Overall MaxConc (ug/m3)..... 756.8 at Point#...1628 20 seconds total at 756 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...594

DataRAM ID# 2458 - October 15, 1998
Tag Number 3
Number of logged points..... 2615
Start time (hr:min:sec day/mon/yr)... 08:11:33 15/10/98
Elapsed time (hr:min:sec)..... 07:15:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 51.1
Overall MaxConc (ug/m3)..... 497.1 at Point#...1496 Unknown
Overall MinConc (ug/m3)..... 15.5 at Point#...539

DataRAM ID# 2458 - October 16, 1998
Tag Number 1
Number of logged points..... 2439
Start time (hr:min:sec day/mon/yr)... 07:53:08 16/10/98
Elapsed time (hr:min:sec)..... 06:46:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 48.3
Overall MaxConc (ug/m3)..... 510.8 at Point#...2068 20 seconds total at 510 - unknown cause
Overall MinConc (ug/m3)..... 18.3 at Point#...2422

DataRAM ID# 2458 - October 19, 1998
Tag Number 1
Number of logged points..... 1437
Start time (hr:min:sec day/mon/yr)... 07:54:31 19/10/98
Elapsed time (hr:min:sec)..... 03:59:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 29.3
Overall MaxConc (ug/m3)..... 256.0 at Point#...885 10 seconds total at 256 - unknown cause
Overall MinConc (ug/m3)..... 7.4 at Point#...621

DataRAM ID# 2458 - October 19, 1998

Tag Number 1

Number of logged points..... 1407

Start time (hr:min:sec day/mon/yr)... 07:56:11 19/10/98

Elapsed time (hr:min:sec)..... 03:54:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 26.0

Overall MaxConc (ug/m3)..... 791.6 at Point#...1089

20 seconds total at 791 - unknown cause

Overall MinConc (ug/m3)..... 6.9 at Point#...612

4771 Thompson Court - South Summary

DataRAM ID# 2458 - October 13, 1998
Tag Number 1
Number of logged points..... 2122
Start time (hr:min:sec day/mon/yr)... 09:52:03 13/10/98
Elapsed time (hr:min:sec)..... 05:53:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 17.5
Overall MaxConc (ug/m3)..... 687.6 at Point#...1310
Overall MinConc (ug/m3)..... 4.0 at Point#...1655

Unknown

DataRAM ID# 2458 - October 14, 1998
Tag Number 2
Number of logged points..... 2364
Start time (hr:min:sec day/mon/yr)... 10:13:49 14/10/98
Elapsed time (hr:min:sec)..... 06:34:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 28.2
Overall MaxConc (ug/m3)..... 1233.9 at Point#...1692
Overall MinConc (ug/m3)..... 0.0 at Point#...431

30 seconds total - conc ranging from 336 to 1,233 - unknown cause

DataRAM ID# 2458 - October 15, 1998
Tag Number 3
Number of logged points..... 2578
Start time (hr:min:sec day/mon/yr)... 08:15:59 15/10/98
Elapsed time (hr:min:sec)..... 07:09:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 44.2
Overall MaxConc (ug/m3)..... 363.3 at Point#...1001
Overall MinConc (ug/m3)..... 13.6 at Point#...380

20 seconds total at 363 - unknown cause

DataRAM ID# 2458 - October 16, 1998
Tag Number 1
Number of logged points..... 2411
Start time (hr:min:sec day/mon/yr)... 07:57:49 16/10/98
Elapsed time (hr:min:sec)..... 06:41:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 41.0
Overall MaxConc (ug/m3)..... 1024.4 at Point#...1927
Overall MinConc (ug/m3)..... 0.0 at Point#...2074

20 seconds total at 1,024 - unknown cause

DataRAM ID# 2458 - October 19, 1998
Tag Number 1
Number of logged points..... 1395
Start time (hr:min:sec day/mon/yr)... 07:58:14 19/10/98
Elapsed time (hr:min:sec)..... 03:52:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 24.0
Overall MaxConc (ug/m3)..... 293.9 at Point#...648
Overall MinConc (ug/m3)..... 5.0 at Point#...601

20 seconds total at 293 - unknown cause

4771 Thompson Court - East Summary

DataRAM ID# 2458 - October 13, 1998

Tag Number 1
Number of logged points..... 2286
Start time (hr:min:sec day/mon/yr)... 09:22:18 13/10/98
Elapsed time (hr:min:sec)..... 06:21:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 24.9
Overall MaxConc (ug/m3)..... 1252.9 at Point#...359
Overall MinConc (ug/m3)..... 10.0 at Point#...1829

20 seconds at 1,252 - unknown cause

DataRAM ID# 2458 - October 14, 1998

Tag Number 2
Number of logged points..... 2371
Start time (hr:min:sec day/mon/yr)... 10:10:20 14/10/98
Elapsed time (hr:min:sec)..... 06:35:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 43.3
Overall MaxConc (ug/m3)..... 2346.7 at Point#...2310
Overall MinConc (ug/m3)..... 6.7 at Point#...663

2 minutes total, conc ranging from 87 to 2,346
Unknown cause - likely end of day sweeping operations

DataRAM ID# 2458 - October 15, 1998 -First Half of Day

Tag Number 3
Number of logged points..... 1270
Start time (hr:min:sec day/mon/yr)... 08:18:17 15/10/98
Elapsed time (hr:min:sec)..... 03:31:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 179.2
STEL occurrence after start (hr:min:sec)..... 03:27:04
Overall AvgConc (ug/m3)..... 63.6
Overall MaxConc (ug/m3)..... 3563.6 at Point#...1153
Overall MinConc (ug/m3)..... 18.1 at Point#...427

50 seconds total - conc ranging from 320 to 3,563 - unknown cause

DataRAM ID# 2458 - October 15, 1998 - Second Half of Day

Tag Number 1
Number of logged points..... 1170
Start time (hr:min:sec day/mon/yr)... 12:15:57 15/10/98
Elapsed time (hr:min:sec)..... 03:15:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 62.3
Overall MaxConc (ug/m3)..... 887.9 at Point#...1162
Overall MinConc (ug/m3)..... 36.0 at Point#...936

Unknown

DataRAM ID# 2458 - October 16, 1998

Tag Number 1
Number of logged points..... 2428
Start time (hr:min:sec day/mon/yr)... 07:55:16 16/10/98
Elapsed time (hr:min:sec)..... 06:44:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 60.4
Overall MaxConc (ug/m3)..... 2062.8 at Point#...1939
Overall MinConc (ug/m3)..... 13.6 at Point#...2286

20 seconds total at 2,062 - unknown cause

TABLE 5.3
Total Suspended Particulate Monitoring - 4691 Vine Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	Data RAM / Mini RAM Comparison	
				West / Hr:Min:Sec	West / Hr:Min:Sec
10/20/98	6.5 / 6:31:20	13.3 / 6:31:00	172.3 / 6:30:50	83.3 / 6:31:00	190 / 6:30 (MR)
10/21/98	36.3 / 7:19:30	43.7 / 7:22:40	198.5 / 7:18:40	113.6 / 7:21:30	280 / 7:00 (MR)
10/22/98	68.4 / 4:11:30	41.4 / 4:04:50	186.6 / 4:02:20	60.8 / 4:03:30	210 / 4:00 (MR)

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



4691 Vine North Summary

DataRAM ID# 2458 - October 20, 1998

Tag Number 1

Number of logged points..... 2348

Start time (hr:min:sec day/mon/yr)... 10:14:57 20/10/98

Elapsed time (hr:min:sec)..... 06:31:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 6.5

Overall MaxConc (ug/m3)..... 562.9 at Point#...82 20 seconds total at 562 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 21, 1998

Tag Number 1

Number of logged points..... 2637

Start time (hr:min:sec day/mon/yr)... 08:14:35 21/10/98

Elapsed time (hr:min:sec)..... 07:19:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 36.3

Overall MaxConc (ug/m3)..... 1025.8 at Point#...1813 Unknown

Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 22, 1998

Tag Number 1

Number of logged points..... 1509

Start time (hr:min:sec day/mon/yr)... 08:50:40 22/10/98

Elapsed time (hr:min:sec)..... 04:11:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 68.4

Overall MaxConc (ug/m3)..... 912.3 at Point#...1149 Unknown

Overall MinConc (ug/m3)..... 0.0 at Point#...1

4691 Vine. - South Summary

"DataRAM ID# 2458" - October 20, 1998
"Tag Number 1"
"Number of logged points..... 2346"
"Start time (hr:min:sec day/mon/yr)... 10:15:40 20/10/98"
"Elapsed time (hr:min:sec)..... 06:31:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 13.3"
"Overall MaxConc (ug/m3)..... 146.0 at Point#...48" N/A
"Overall MinConc (ug/m3)..... 3.0 at Point#...1258"

"DataRAM ID# 2458" - October 21, 1998
"Tag Number 1"
"Number of logged points..... 2656"
"Start time (hr:min:sec day/mon/yr)... 08:15:19 21/10/98"
"Elapsed time (hr:min:sec)..... 07:22:40"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 43.7"
"Overall MaxConc (ug/m3)..... 292.3 at Point#...1014" Unknown
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" - October 22, 1998
"Tag Number 1"
"Number of logged points..... 1469"
"Start time (hr:min:sec day/mon/yr)... 08:57:30 22/10/98"
"Elapsed time (hr:min:sec)..... 04:04:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 41.4"
"Overall MaxConc (ug/m3)..... 166.7 at Point#...271" N/A
"Overall MinConc (ug/m3)..... 17.0 at Point#...1"

4691 Vine Street - East Summary

"DataRAM ID# 2458" - October 20, 1998
"Tag Number 1"
"Number of logged points..... 2345"
"Start time (hr:min:sec day/mon/yr)... 10:14:49 20/10/98"
"Elapsed time (hr:min:sec)..... 06:30:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 172.3"
"Overall MaxConc (ug/m3)..... 1425.7 at Point#...1957" Unknown
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" -October 21, 1998
"Tag Number 1"
"Number of logged points..... 2632"
"Start time (hr:min:sec day/mon/yr)... 08:13:11 21/10/98"
"Elapsed time (hr:min:sec)..... 07:18:40"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 198.5"
"Overall MaxConc (ug/m3)..... 1746.5 at Point#...2490" Unknown
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" - October 22, 1998
"Tag Number 1"
"Number of logged points..... 1454"
"Start time (hr:min:sec day/mon/yr)... 08:59:18 22/10/98"
"Elapsed time (hr:min:sec)..... 04:02:20"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 186.6"
"Overall MaxConc (ug/m3)..... 556.6 at Point#...948" Unknown
"Overall MinConc (ug/m3)..... 158.1 at Point#...1"

4691 Vine Street - West Summary

DataRAM ID# 2458 - October 20, 1998
Tag Number 1
Number of logged points..... 2346
Start time (hr:min:sec day/mon/yr)... 10:15:33 20/10/98
Elapsed time (hr:min:sec)..... 06:31:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 83.3
Overall MaxConc (ug/m3)..... 2358.3 at Point#...2253 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 21, 1998
Tag Number 1
Number of logged points..... 2649
Start time (hr:min:sec day/mon/yr)... 08:15:26 21/10/98
Elapsed time (hr:min:sec)..... 07:21:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 113.6
Overall MaxConc (ug/m3)..... 602.9 at Point#...2554 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 22, 1998
Tag Number 1
Number of logged points..... 1461
Start time (hr:min:sec day/mon/yr)... 08:58:50 22/10/98
Elapsed time (hr:min:sec)..... 04:03:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 60.8
Overall MaxConc (ug/m3)..... 253.5 at Point#...410 30 seconds total, conc ranging from 210 to 253 - unknown cause
Overall MinConc (ug/m3)..... 34.9 at Point#...1

TABLE 5.4
Total Suspended Particulate Monitoring - 4940 and 4936 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/20/98	15.0 / 8:33:20	18.5 / 8:29:10	28.6 / 9:02:40	60 / 8:45 (MR)
10/21/98	36.7 / 9:00:50	29.9 / 9:04:00	58.2 / 8:41:40	160 / 9:15 (MR)
10/22/98	43.5 / 8:04:30	36.8 / 8:08:10	52.5 / 8:04:50	160 / 6:45 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



4940 and 4936 Steele Street - North Summary

DataRAM ID# 2458 - October 20, 1998

Tag Number 1

Number of logged points..... 3080

Start time (hr:min:sec day/mon/yr)... 08:05:53 20/10/98

Elapsed time (hr:min:sec)..... 08:33:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 15.0

Overall MaxConc (ug/m3)..... 957.0 at Point#...209

20 seconds total at 957 - unknown cause

Overall MinConc (ug/m3)..... 4.0 at Point#...2043

DataRAM ID# 2458 - October 21, 1998

Tag Number 1

Number of logged points..... 3245

Start time (hr:min:sec day/mon/yr)... 07:58:33 21/10/98

Elapsed time (hr:min:sec)..... 09:00:50

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 36.7

Overall MaxConc (ug/m3)..... 258.0 at Point#...219

20 seconds total at 258 - unknown cause

Overall MinConc (ug/m3)..... 18.5 at Point#...1718

DataRAM ID# 2458 - October 22, 1998

Tag Number 1

Number of logged points..... 2907

Start time (hr:min:sec day/mon/yr)... 08:10:16 22/10/98

Elapsed time (hr:min:sec)..... 08:04:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 43.5

Overall MaxConc (ug/m3)..... 213.3 at Point#...2299

20 seconds total at 213 - unknown cause

Overall MinConc (ug/m3)..... 13.7 at Point#...892

4940 and 4936 Steele Street - South Summary

DataRAM ID# 2458 - October 20, 1998

Tag Number 1

Number of logged points..... 3055

Start time (hr:min:sec day/mon/yr)... 08:12:13 20/10/98

Elapsed time (hr:min:sec)..... 08:29:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 18.5

Overall MaxConc (ug/m3)..... 388.9 at Point#...688

20 seconds total at 388 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...2107

DataRAM ID# 2458 - October 21, 1998

Tag Number 1

Number of logged points..... 3264

Start time (hr:min:sec day/mon/yr)... 08:00:33 21/10/98

Elapsed time (hr:min:sec)..... 09:04:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 29.9

Overall MaxConc (ug/m3)..... 212.9 at Point#...1865

10 seconds total at 212 - unknown cause

Overall MinConc (ug/m3)..... 7.6 at Point#...1754

DataRAM ID# 2458 - October 22, 1998

Tag Number 1

Number of logged points..... 2929

Start time (hr:min:sec day/mon/yr)... 08:12:23 22/10/98

Elapsed time (hr:min:sec)..... 08:08:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 36.8

Overall MaxConc (ug/m3)..... 282.3 at Point#...2185

20 seconds total at 282 - unknown cause

Overall MinConc (ug/m3)..... 4.6 at Point#...2805

4940 and 4936 Steele Street - East Summary

DataRAM ID# 2458 - October 20, 1998

Tag Number 1

Number of logged points..... 3256

Start time (hr:min:sec day/mon/yr)... 08:01:38 20/10/98

Elapsed time (hr:min:sec)..... 09:02:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 28.6

Overall MaxConc (ug/m3)..... 606.8 at Point#...2419 20 seconds total at 606 - unknown cause

Overall MinConc (ug/m3)..... 2.1 at Point#...2853

DataRAM ID# 2458 - October 21, 1998 - A

Tag Number 1

Number of logged points..... 1094

Start time (hr:min:sec day/mon/yr)... 07:56:42 21/10/98

Elapsed time (hr:min:sec)..... 03:02:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 208.9

STEL occurrence after start (hr:min:sec)..... 03:02:00

Overall AvgConc (ug/m3)..... 76.9

Overall MaxConc (ug/m3)..... 3379.3 at Point#...201 20 seconds total at 3,379 - unknown cause

Overall MinConc (ug/m3)..... 14.7 at Point#...1017

DataRAM ID# 2458 - October 21, 1998 - B

Tag Number 2

Number of logged points..... 2036

Start time (hr:min:sec day/mon/yr)... 10:59:54 21/10/98

Elapsed time (hr:min:sec)..... 05:39:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 39.5

Overall MaxConc (ug/m3)..... 2017.0 at Point#...1097 50 seconds total, conc ranging from 518 to 2,017 - unknown cause

Overall MinConc (ug/m3)..... 5.6 at Point#...1669

DataRAM ID# 2458 - October 22, 1998

Tag Number 1

Number of logged points..... 2909

Start time (hr:min:sec day/mon/yr)... 08:13:18 22/10/98

Elapsed time (hr:min:sec)..... 08:04:50

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 52.5

Overall MaxConc (ug/m3)..... 1263.8 at Point#...24 20 seconds total at 1,263 - unknown cause

Overall MinConc (ug/m3)..... 14.5 at Point#...2907



TABLE 5.5
Total Suspended Particulate Monitoring - 4771 Vine Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)				
	North/ Hr:Min:Sec	South/ Hr:Min:Sec	East/ Hr:Min:Sec	Data RAM / Mini RAM Comparison	
				West/ Hr:Min:Sec	West/ Hr:Min:Sec
10/26/98	47.9 / 7:40:00	98.7 / 7:41:20	23.2 / 7:40:10	54.3 / 7:39:10	210 / 7:40 (MR)
10/27/98	98.3 / 7:42:30	99.1 / 5:29:00	38.4 / 7:40:40	101.5 / 5:30:30	350 / 5:30 (MR)
10/28/98	No excavation work due to muddy and windy conditions				
10/29/98	56.0 / 3:58:00	16.6 / 3:52:10	1.3 / 3:57:50	19.3 / 4:03:10	160 / 4:00 (MR)

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



4771 Vine Street - North Summary

"DataRAM ID# 2458" - October 26, 1998

"Tag Number 1"

"Number of logged points..... 2760"

"Start time (hr:min:sec day/mon/yr)... 09:13:08 26/10/98"

"Elapsed time (hr:min:sec)..... 07:40:00"

"Averaging Time (sec)..... 10"

"Logging period (hr:min:sec)..... 00:00:10"

"CalFactor (%)..... 100"

"StelConc (ug/m3)..... 0.0"

"STEL occurrence after start (hr:min:sec)..... 00:00:00"

"Overall AvgConc (ug/m3)..... 47.9"

"Overall MaxConc (ug/m3)..... 2113.1 at Point#...104"

"Overall MinConc (ug/m3)..... 12.8 at Point#...666"

3 minutes total had elevated concentrations ranging from 237 to 2,113 - unknown cause

"DataRAM ID# 2458" - October 27, 1998

"Tag Number 1"

"Number of logged points..... 2775"

"Start time (hr:min:sec day/mon/yr)... 09:41:32 27/10/98"

"Elapsed time (hr:min:sec)..... 07:42:30"

"Averaging Time (sec)..... 10"

"Logging period (hr:min:sec)..... 00:00:10"

"CalFactor (%)..... 100"

"StelConc (ug/m3)..... 0.0"

"STEL occurrence after start (hr:min:sec)..... 00:00:00"

"Overall AvgConc (ug/m3)..... 98.3"

"Overall MaxConc (ug/m3)..... 1140.1 at Point#...576"

"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

20 seconds total had 2 readings at 1,140 - unknown cause

"DataRAM ID# 2458" - October 29, 1998

"Tag Number 1"

"Number of logged points..... 1428"

"Start time (hr:min:sec day/mon/yr)... 08:59:07 29/10/98"

"Elapsed time (hr:min:sec)..... 03:58:00"

"Averaging Time (sec)..... 10"

"Logging period (hr:min:sec)..... 00:00:10"

"CalFactor (%)..... 100"

"StelConc (ug/m3)..... 0.0"

"STEL occurrence after start (hr:min:sec)..... 00:00:00"

"Overall AvgConc (ug/m3)..... 56.0"

"Overall MaxConc (ug/m3)..... 526.6 at Point#...1329"

"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

30 Seconds total had readings from 355 to 526 - unknown cause

4771 Vine Street - South Summary

"DataRAM ID# 2458" - October 26, 1998
"Tag Number 1"
"Number of logged points..... 2768"
"Start time (hr:min:sec day/mon/yr)... 09:13:38 26/10/98"
"Elapsed time (hr:min:sec)..... 07:41:20"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 98.7"
"Overall MaxConc (ug/m3)..... 1745.8 at Point#...2697"
"Overall MinConc (ug/m3)..... 20.1 at Point#...719"

Appx 1 minute, likely due to street sweeping operations near data RAM

"DataRAM ID# 2458" - October 27, 1998
"Tag Number 1"
"Number of logged points..... 1974"
"Start time (hr:min:sec day/mon/yr)... 12:03:06 27/10/98"
"Elapsed time (hr:min:sec)..... 05:29:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 99.1"
"Overall MaxConc (ug/m3)..... 3260.1 at Point#...899"
"Overall MinConc (ug/m3)..... 23.9 at Point#...1"

Appx 40 seconds total, ranging from 205 to 1,258 - unknown cause

"DataRAM ID# 2458" - October 29, 1998
"Tag Number 1"
"Number of logged points..... 1393"
"Start time (hr:min:sec day/mon/yr)... 09:11:36 29/10/98"
"Elapsed time (hr:min:sec)..... 03:52:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 16.6"
"Overall MaxConc (ug/m3)..... 1258.4 at Point#...245"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

Appx 70 seconds total, ranging from 205 to 1,258 - unknown cause

4771 Vine Street - East Summary

"DataRAM ID# 2458" - October 26, 1998
"Tag Number 1"
"Number of logged points..... 2761"
"Start time (hr:min:sec day/mon/yr)... 09:13:35 26/10/98"
"Elapsed time (hr:min:sec)..... 07:40:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 23.2"
"Overall MaxConc (ug/m3)..... 1311.9 at Point#...104"
"Overall MinConc (ug/m3)..... 1.7 at Point#...784"

Appx 3 minutes total, ranging from 215 to 1,311 - unknown cause

"DataRAM ID# 2458" - October 27, 1998
"Tag Number 1"
"Number of logged points..... 2764"
"Start time (hr:min:sec day/mon/yr)... 09:42:59 27/10/98"
"Elapsed time (hr:min:sec)..... 07:40:40"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 38.4"
"Overall MaxConc (ug/m3)..... 1340.8 at Point#...358"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

Appx 30 seconds total, ranging from 1,031 to 1,340 - unknown cause

"DataRAM ID# 2458" - October 29, 1998
"Tag Number 1"
"Number of logged points..... 1427"
"Start time (hr:min:sec day/mon/yr)... 09:00:12 29/10/98"
"Elapsed time (hr:min:sec)..... 03:57:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 1.3"
"Overall MaxConc (ug/m3)..... 324.8 at Point#...1326"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

Appx 30 seconds total, ranging from 211 to 324 - unknown cause

4771 Vine Street - West Summary

DataRAM ID# 2458 - October 26, 1998
Tag Number 1
Number of logged points..... 2755
Start time (hr:min:sec day/mon/yr)... 09:13:59 26/10/98
Elapsed time (hr:min:sec)..... 07:39:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 54.3
Overall MaxConc (ug/m3)..... 3613.3 at Point#...2519 Unknown
Overall MinConc (ug/m3)..... 16.0 at Point#...725

DataRAM ID# 2458 - October 27, 1998
Tag Number 1
Number of logged points..... 1983
Start time (hr:min:sec day/mon/yr)... 12:00:02 27/10/98
Elapsed time (hr:min:sec)..... 05:30:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 101.5
Overall MaxConc (ug/m3)..... 18254.3 at Point#...203 20 seconds at 18,254 - Unknown cause but likely close direct exposure to engine exhaust
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 29, 1998
Tag Number 1
Number of logged points..... 1459
Start time (hr:min:sec day/mon/yr)... 09:06:47 29/10/98
Elapsed time (hr:min:sec)..... 04:03:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 19.3
Overall MaxConc (ug/m3)..... 149.3 at Point#...798 N/A
Overall MinConc (ug/m3)..... 0.3 at Point#...1

TABLE 5.6
Total Suspended Particulate Monitoring - 5195 St. Paul Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
10/26/98	36.4 / 6:12:00	26.0 / 5:59:10	35.5 / 6:15:40	290 / 7:45 (MR)
10/27/98	52.8 / 8:26:40	38.8 / 8:18:50	46.7 / 8:22:50	650 / 9:00 (MR)
10/28/98	No excavation work due to muddy and windy conditions			
10/29/98	16.2 / 8:27:30	8.5 / 8:34:10	N/C	410 / 8:56 (MR)
10/30/98	18.6 / 7:37:50	31.3 / 7:38:50	44.7 / 6:02:50	490 / 7:44 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



5195 St. Paul Court - North Summary

"DataRAM ID# 2458" - October 26, 1998
"Tag Number 1"
"Number of logged points..... 2232"
"Start time (hr:min:sec day/mon/yr)... 11:19:57 26/10/98"
"Elapsed time (hr:min:sec)..... 06:12:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 36.4"
"Overall MaxConc (ug/m3)..... 418.3 at Point#...2106"
"Overall MinConc (ug/m3)..... 1.0 at Point#...54"

20 seconds total at 418 - unknown cause

"DataRAM ID# 2458" - October 27, 1998
"Tag Number 1"
"Number of logged points..... 3040"
"Start time (hr:min:sec day/mon/yr)... 08:00:19 27/10/98"
"Elapsed time (hr:min:sec)..... 08:26:40"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 52.8"
"Overall MaxConc (ug/m3)..... 880.2 at Point#...1361"
"Overall MinConc (ug/m3)..... 9.8 at Point#...2629"

60 seconds total, conc ranging from 281 to 880 - unknown cause

"DataRAM ID# 2458" - October 29, 1998
"Tag Number 1"
"Number of logged points..... 3045"
"Start time (hr:min:sec day/mon/yr)... 08:23:00 29/10/98"
"Elapsed time (hr:min:sec)..... 08:27:30"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 16.2"
"Overall MaxConc (ug/m3)..... 635.7 at Point#...3027"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

20 seconds total at 635 - unknown cause, likely street sweeping at end of day

"DataRAM ID# 2458" - October 30, 1998
"Tag Number 1"
"Number of logged points..... 2747"
"Start time (hr:min:sec day/mon/yr)... 08:04:34 30/10/98"
"Elapsed time (hr:min:sec)..... 07:37:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 18.6"
"Overall MaxConc (ug/m3)..... 1993.9 at Point#...8"
"Overall MinConc (ug/m3)..... 1.3 at Point#...1050"

50 seconds total, conc ranging from 272 to 1,993 - unknown cause

5195 St. Paul Court - South Summary

DataRAM ID# 2458 - October 26, 1998 - A

Tag Number 1
Number of logged points..... 1551
Start time (hr:min:sec day/mon/yr)... 11:22:19 26/10/98
Elapsed time (hr:min:sec)..... 04:18:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 23.2
Overall MaxConc (ug/m3)..... 1123.7 at Point#...1551
Overall MinConc (ug/m3)..... 4.4 at Point#...358

10 seconds at 1,123 - end of day - unknown caus

DataRAM ID# 2458 - October 26, 1998 - B

Tag Number 2
Number of logged points..... 604
Start time (hr:min:sec day/mon/yr)... 15:49:15 26/10/98
Elapsed time (hr:min:sec)..... 01:40:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 28.9
Overall MaxConc (ug/m3)..... 115.2 at Point#...589
Overall MinConc (ug/m3)..... 9.6 at Point#...292

N/A

DataRAM ID# 2458 - October 27, 1998

Tag Number 1
Number of logged points..... 2993
Start time (hr:min:sec day/mon/yr)... 08:08:23 27/10/98
Elapsed time (hr:min:sec)..... 08:18:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 38.8
Overall MaxConc (ug/m3)..... 471.0 at Point#...1864
Overall MinConc (ug/m3)..... 8.0 at Point#...2502

20 seconds total at 471 - unknown cause

DataRAM ID# 2458 - October 29, 1998

Tag Number 1
Number of logged points..... 3085
Start time (hr:min:sec day/mon/yr)... 08:16:13 29/10/98
Elapsed time (hr:min:sec)..... 08:34:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 8.5
Overall MaxConc (ug/m3)..... 366.8 at Point#...2256
Overall MinConc (ug/m3)..... 0.0 at Point#...1

20 seconds total at 366 - unknown cause

DataRAM ID# 2458 - October 30, 1998

Tag Number 1
Number of logged points..... 2753
Start time (hr:min:sec day/mon/yr)... 08:02:16 30/10/98
Elapsed time (hr:min:sec)..... 07:38:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 31.3
Overall MaxConc (ug/m3)..... 1077.0 at Point#...2471
Overall MinConc (ug/m3)..... 0.0 at Point#...130

20 seconds total at 1,077 - unknown cause

5195 St. Paul Court - East Summary

DataRAM ID# 2458 - October 26, 1998

Tag Number 1

Number of logged points..... 2254

Start time (hr:min:sec day/mon/yr)... 11:17:18 26/10/98

Elapsed time (hr:min:sec)..... 06:15:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 35.5

Overall MaxConc (ug/m3)..... 589.2 at Point#...932

Overall MinConc (ug/m3)..... 6.9 at Point#...13

40 seconds total, conc ranging from 242 to 589 - unknown cause

DataRAM ID# 2458 - October 27, 1998

Tag Number 1

Number of logged points..... 3017

Start time (hr:min:sec day/mon/yr)... 08:04:22 27/10/98

Elapsed time (hr:min:sec)..... 08:22:50

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 46.7

Overall MaxConc (ug/m3)..... 451.5 at Point#...7

Overall MinConc (ug/m3)..... 5.6 at Point#...2508

20 seconds total at 451 - unknown cause

DataRAM ID# 2458 - October 30, 1998

Tag Number 1

Number of logged points..... 2177

Start time (hr:min:sec day/mon/yr)... 10:34:42 30/10/98

Elapsed time (hr:min:sec)..... 06:02:50

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 44.7

Overall MaxConc (ug/m3)..... 868.4 at Point#...726

Overall MinConc (ug/m3)..... 13.4 at Point#...389

20 seconds total at 868 - unknown cause



TABLE 5.7
Total Suspended Particulate Monitoring - 4760 St Paul Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min:Sec
10/30/98	N/C	42.4 / 6:04:30	25.1 / 4:57:50	33.1 / 6:06:10
10/31/98	Weekend - No excavation/monitoring			
11/1/98	Weekend - No excavation/monitoring			
11/2/98	202.9 / 1:55:40	32.4 / 3:43:50	18.3 / 3:45:00	25.6 / 3:41:50
11/3/98	26.9 / 6:07:30	36.7 / 8:31:20	27.3 / 8:28:10	23.2 / 8:32:30

N/C - Data RAM not collecting due to programming errors



4760 St Paul Court - North Summary

DataRAM ID# 2458 - November 2, 1998

Tag Number 1

Number of logged points..... 694

Start time (hr:min:sec day/mon/yr)... 10:59:14 02/11/98

Elapsed time (hr:min:sec)..... 01:55:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 202.9

Overall MaxConc (ug/m3)..... 288.8 at Point#...103

20 seconds total at 288 - excavation / loading operations

Overall MinConc (ug/m3)..... 152.2 at Point#...1

DataRAM ID# 2458 - November 3, 1998

Tag Number 1

Number of logged points..... 2205

Start time (hr:min:sec day/mon/yr)... 10:32:36 03/11/98

Elapsed time (hr:min:sec)..... 06:07:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 26.9

Overall MaxConc (ug/m3)..... 166.9 at Point#...344

N/A

Overall MinConc (ug/m3)..... 3.5 at Point#...3

4760 St Paul Court - South Summary

DataRAM ID# 2458 - October 30 - A
 Tag Number 1
 Number of logged points..... 1041
 Start time (hr:min:sec day/mon/yr)... 09:28:47 30/10/98
 Elapsed time (hr:min:sec)..... 02:53:30
 Averaging Time (sec)..... 10
 Logging period (hr:min:sec)..... 00:00:10
 CalFactor (%)..... 100
 StelConc (ug/m3)..... 0.0
 STEL occurrence after start (hr:min:sec)..... 00:00:00
 Overall AvgConc (ug/m3)..... 19.1
 Overall MaxConc (ug/m3)..... 167.4 at Point#...919
 Overall MinConc (ug/m3)..... 0.0 at Point#...1
 N/A

DataRAM ID# 2458 - October 30 - B
 Tag Number 2
 Number of logged points..... 1146
 Start time (hr:min:sec day/mon/yr)... 14:22:30 30/10/98
 Elapsed time (hr:min:sec)..... 03:11:00
 Averaging Time (sec)..... 10
 Logging period (hr:min:sec)..... 00:00:10
 CalFactor (%)..... 100
 StelConc (ug/m3)..... 0.0
 STEL occurrence after start (hr:min:sec)..... 00:00:00
 Overall AvgConc (ug/m3)..... 65.7
 Overall MaxConc (ug/m3)..... 851.5 at Point#...112
 Overall MinConc (ug/m3)..... 0.0 at Point#...1
 30 seconds total, conc ranging from 219 to 851 - unknown cause

DataRAM ID# 2458 - November 2, 1998
 Tag Number 1
 Number of logged points..... 1343
 Start time (hr:min:sec day/mon/yr)... 09:05:27 02/11/98
 Elapsed time (hr:min:sec)..... 03:43:50
 Averaging Time (sec)..... 10
 Logging period (hr:min:sec)..... 00:00:10
 CalFactor (%)..... 100
 StelConc (ug/m3)..... 0.0
 STEL occurrence after start (hr:min:sec)..... 00:00:00
 Overall AvgConc (ug/m3)..... 32.4
 Overall MaxConc (ug/m3)..... 232.4 at Point#...1041
 Overall MinConc (ug/m3)..... 3.9 at Point#...1
 20 seconds total at 232 - unknown cause

DataRAM ID# 2458 - November 3, 1998
 Tag Number 1
 Number of logged points..... 3068
 Start time (hr:min:sec day/mon/yr)... 08:05:39 03/11/98
 Elapsed time (hr:min:sec)..... 08:31:20
 Averaging Time (sec)..... 10
 Logging period (hr:min:sec)..... 00:00:10
 CalFactor (%)..... 100
 StelConc (ug/m3)..... 0.0
 STEL occurrence after start (hr:min:sec)..... 00:00:00
 Overall AvgConc (ug/m3)..... 36.7
 Overall MaxConc (ug/m3)..... 859.3 at Point#...2740
 Overall MinConc (ug/m3)..... 0.0 at Point#...4
 20 seconds total at 859 - unknown cause

4760 St Paul Court - East Summary

DataRAM ID# 2458 - November 2, 1998
Tag Number 1
Number of logged points..... 1350
Start time (hr:min:sec day/mon/yr)... 09:09:23 02/11/98
Elapsed time (hr:min:sec)..... 03:45:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 18.3
Overall MaxConc (ug/m3)..... 105.1 at Point#...743 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 3, 1998
Tag Number 1
Number of logged points..... 3049
Start time (hr:min:sec day/mon/yr)... 08:13:59 03/11/98
Elapsed time (hr:min:sec)..... 08:28:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 27.3
Overall MaxConc (ug/m3)..... 257.7 at Point#...1940 20 seconds total at 257 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...8

DataRAM ID# 2458 - October 30 - A
Tag Number 1
Number of logged points..... 369
Start time (hr:min:sec day/mon/yr)... 09:35:54 30/10/98
Elapsed time (hr:min:sec)..... 01:01:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 13.8
Overall MaxConc (ug/m3)..... 153.9 at Point#...10 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - October 30 - B
Tag Number 2
Number of logged points..... 271
Start time (hr:min:sec day/mon/yr)... 11:41:37 30/10/98
Elapsed time (hr:min:sec)..... 00:45:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 9.7
Overall MaxConc (ug/m3)..... 103.5 at Point#...121 N/A
Overall MinConc (ug/m3)..... 2.7 at Point#...179

DataRAM ID# 2458 - October 30 - C
Tag Number 3
Number of logged points..... 1147
Start time (hr:min:sec day/mon/yr)... 14:27:19 30/10/98
Elapsed time (hr:min:sec)..... 03:11:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 51.9
Overall MaxConc (ug/m3)..... 712.3 at Point#...1 10 seconds total at 712 - Start of day - unknown cause
Overall MinConc (ug/m3)..... 11.6 at Point#...5

4760 St Paul Court - West Summary

DataRAM ID# 2458 - October 30 - A
Tag Number 1
Number of logged points..... 1056
Start time (hr:min:sec day/mon/yr)... 09:20:36 30/10/98
Elapsed time (hr:min:sec)..... 02:56:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 23.1
Overall MaxConc (ug/m3)..... 66.6 at Point#...940 N/A
Overall MinConc (ug/m3)..... 7.3 at Point#...1

DataRAM ID# 2458 - October 30 - B
Tag Number 2
Number of logged points..... 1141
Start time (hr:min:sec day/mon/yr)... 14:21:46 30/10/98
Elapsed time (hr:min:sec)..... 03:10:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 43.0
Overall MaxConc (ug/m3)..... 171.7 at Point#...1032 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 2, 1998
Tag Number 1
Number of logged points..... 1331
Start time (hr:min:sec day/mon/yr)... 09:04:23 02/11/98
Elapsed time (hr:min:sec)..... 03:41:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 25.6
Overall MaxConc (ug/m3)..... 72.7 at Point#...1 N/A
Overall MinConc (ug/m3)..... 14.0 at Point#...1327

DataRAM ID# 2458 - November 3, 1998
Tag Number 1
Number of logged points..... 3075
Start time (hr:min:sec day/mon/yr)... 08:03:05 03/11/98
Elapsed time (hr:min:sec)..... 08:32:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 23.2
Overall MaxConc (ug/m3)..... 2671.5 at Point#...92
Overall MinConc (ug/m3)..... 2.0 at Point#...24

60 seconds total, conc ranging from 202 to 2,671 - likely loading of excavated soils

TABLE 5.8
Total Suspended Particulate Monitoring - 4980 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/2/98	21.5 / 1:54:10	40.6 / 2:06:20	186.6 / 1:59:30	187 / 2:00 (MR)
11/3/98	21.5 / 7:17:20	28.5 / 7:11:00	78.6 / 7:13:00	930 / 5:35 (MR)**

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** - Windrose data indicate wind direction to south/southwest.



4980 Steele Street - North Summary

DataRAM ID# 2458 - November 2, 1998

Tag Number 1

Number of logged points..... 685

Start time (hr:min:sec day/mon/yr)... 09:34:01 02/11/98

Elapsed time (hr:min:sec)..... 01:54:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 21.5

Overall MaxConc (ug/m3)..... 234.8 at Point#...158 20 seconds total at 234 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 3, 1998

Tag Number 1

Number of logged points..... 2624

Start time (hr:min:sec day/mon/yr)... 08:00:10 03/11/98

Elapsed time (hr:min:sec)..... 07:17:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 21.5

Overall MaxConc (ug/m3)..... 280.4 at Point#...2575 20 seconds total at 280 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

4980 Steele Street - South Summary

DataRAM ID# 2458 - November 2, 1998

Tag Number 1

Number of logged points..... 758

Start time (hr:min:sec day/mon/yr)... 09:27:17 02/11/98

Elapsed time (hr:min:sec)..... 02:06:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 40.6

Overall MaxConc (ug/m3)..... 983.0 at Point#...523 Unknown

Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 3, 1998

Tag Number 1

Number of logged points..... 2586

Start time (hr:min:sec day/mon/yr)... 08:03:58 03/11/98

Elapsed time (hr:min:sec)..... 07:11:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 28.5

Overall MaxConc (ug/m3)..... 620.9 at Point#...1 20 seconds total at 620 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

4980 Steele Street - East Summary

DataRAM ID# 2458 - November 2, 1998

Tag Number 1

Number of logged points..... 717

Start time (hr:min:sec day/mon/yr)... 10:31:07 02/11/98

Elapsed time (hr:min:sec)..... 01:59:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 186.6

Overall MaxConc (ug/m3)..... 6543.6 at Point#...80

Overall MinConc (ug/m3)..... 0.0 at Point#...1

90 seconds total, conc ranging from 296 to 6,543 - likely due to loading of excavated soil

DataRAM ID# 2458 - November 3, 1998

Tag Number 1

Number of logged points..... 2598

Start time (hr:min:sec day/mon/yr)... 08:01:34 03/11/98

Elapsed time (hr:min:sec)..... 07:13:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 78.6

Overall MaxConc (ug/m3)..... 827.2 at Point#...574

Overall MinConc (ug/m3)..... 0.0 at Point#...1

20 seconds total at 827 - unknown cause



TABLE 5.9
Total Suspended Particulate Monitoring - 4850 Adams Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/4/98	50.1 / 7:22:50	39.5 / 7:06:00	50.6 / 7:13:00	810 / 7:02 (MR)
11/5/98	61.6 / 7:30:30	81.7 / 7:22:50	82.5 / 7:41:10	1,080 / 7:55 (MR)**

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** Windrose data indicate wind direction to south/southwest.



4850 Adams Street - North Summary

DataRAM ID# 2458 - November 4, 1998

Tag Number 1

Number of logged points..... 2657

Start time (hr:min:sec day/mon/yr)... 09:14:52 04/11/98

Elapsed time (hr:min:sec)..... 07:22:50

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 50.1

Overall MaxConc (ug/m3)..... 3148.9 at Point#...209

Overall MinConc (ug/m3)..... 0.0 at Point#...1

50 seconds total, conc ranging from 297 to 3,148 - likely due to loading of excavated soil

DataRAM ID# 2458 - November 5, 1998

Tag Number 1

Number of logged points..... 2703

Start time (hr:min:sec day/mon/yr)... 08:12:23 05/11/98

Elapsed time (hr:min:sec)..... 07:30:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 61.6

Overall MaxConc (ug/m3)..... 3167.1 at Point#...1732

Overall MinConc (ug/m3)..... 0.0 at Point#...1707

20 seconds total at 3,167 - unknown cause

4850 Adams Street - South Summary

DataRAM ID# 2458 - November 4, 1998

Tag Number 1
Number of logged points..... 2556
Start time (hr:min:sec day/mon/yr)... 09:25:47 04/11/98
Elapsed time (hr:min:sec)..... 07:06:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 39.5
Overall MaxConc (ug/m3)..... 1744.2 at Point#...1522
Overall MinConc (ug/m3)..... 0.0 at Point#...1

30 seconds total, conc ranging from 644 to 1,744 - unknown cause

DataRAM ID# 2458 - November 5, 1998

Tag Number 1
Number of logged points..... 2657
Start time (hr:min:sec day/mon/yr)... 08:15:25 05/11/98
Elapsed time (hr:min:sec)..... 07:22:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 81.7
Overall MaxConc (ug/m3)..... 1236.7 at Point#...2612
Overall MinConc (ug/m3)..... 32.4 at Point#...893

20 seconds total at 1,236 - unknown cause

4850 Adams - East Summary

DataRAM ID# 2458 - November 4, 1998

Tag Number 1

Number of logged points..... 2598

Start time (hr:min:sec day/mon/yr)... 09:19:33 04/11/98

Elapsed time (hr:min:sec)..... 07:13:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 50.6

Overall MaxConc (ug/m3)..... 1452.8 at Point#...1369 10 seconds total at 1,452 - unknown cause

Overall MinConc (ug/m3)..... 20.6 at Point#...1716

DataRAM ID# 2458 - November 5, 1998

Tag Number 1

Number of logged points..... 2767

Start time (hr:min:sec day/mon/yr)... 08:01:19 05/11/98

Elapsed time (hr:min:sec)..... 07:41:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 82.5

Overall MaxConc (ug/m3)..... 894.7 at Point#...1855 30 seconds total, conc ranging from 460 to 894 - likely due to loading of excavated soil

Overall MinConc (ug/m3)..... 21.8 at Point#...1780



TABLE 5.10
Total Suspended Particulate Monitoring - 4715 St. Paul Court

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/5/98	31.6 / 7:27:10	82.8 / 8:00:40	42.1 / 7:56:40	850 / 8:05 (MR)
			27.4 / 7:52:20	
11/6/98	56.4 / 7:47:10	91.1 / 8:11:30	57.4 / 8:03:40	820 / 8:20 (MR)
			48.4 / 8:10:20	
11/7/98	Weekend - No excavation/monitoring			
11/8/98	Weekend - No excavation/monitoring			
11/9/98	15.3 / 2:54:10	17.0 / 2:57:40	12.1 / 2:51:00	700 / 2:55 (MR)
			12.1 / 2:50:10	
11/10/98	7.9 / 0:47:30	19.6 / 0:54:00	4.1 / 0:52:50	*MR
			11.9 / 0:51:40	
11/11/98	36.8 / 4:38:00	48.2 / 4:39:40	41.8 / 4:36:10	10 / 4:25 (MR)
			40.4 / 4:36:40	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not recorded in log book for one hour run time.



4715 St Paul Court - North Summary

"DataRAM ID# 2458" - November 5, 1998
"Tag Number 1"
"Number of logged points..... 2683"
"Start time (hr:min:sec day/mon/yr)... 09:00:45 05/11/98"
"Elapsed time (hr:min:sec)..... 07:27:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 31.6"
"Overall MaxConc (ug/m3)..... 181.9 at Point#...1949" N/A
"Overall MinConc (ug/m3)..... 10.7 at Point#...832"

"DataRAM ID# 2458" - November 6, 1998
"Tag Number 1"
"Number of logged points..... 2803"
"Start time (hr:min:sec day/mon/yr)... 08:14:24 06/11/98"
"Elapsed time (hr:min:sec)..... 07:47:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 56.4"
"Overall MaxConc (ug/m3)..... 379.3 at Point#...2684" 20 seconds at 379 - unknown cause
"Overall MinConc (ug/m3)..... 12.0 at Point#...2183"

"DataRAM ID# 2458" - November 9, 1998
"Tag Number 1"
"Number of logged points..... 1045"
"Start time (hr:min:sec day/mon/yr)... 08:15:42 09/11/98"
"Elapsed time (hr:min:sec)..... 02:54:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 15.3"
"Overall MaxConc (ug/m3)..... 377.3 at Point#...150" 20 seconds at 377 - unknown cause
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" - November 10, 1998
"Tag Number 1"
"Number of logged points..... 285"
"Start time (hr:min:sec day/mon/yr)... 08:04:39 10/11/98"
"Elapsed time (hr:min:sec)..... 00:47:30"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 7.9"
"Overall MaxConc (ug/m3)..... 102.0 at Point#...4" N/A
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" - November 11, 1998
"Tag Number 1"
"Number of logged points..... 1668"
"Start time (hr:min:sec day/mon/yr)... 08:02:33 11/11/98"
"Elapsed time (hr:min:sec)..... 04:38:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 36.8"
"Overall MaxConc (ug/m3)..... 1872.2 at Point#...233" 40 seconds total, conc ranging from 374 to 1,872 - likely due to loading of excavated soil
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

4715 St Paul Court - South Summary

DataRAM ID# 2458 - November 5, 1998

Tag Number 1
Number of logged points..... 2884
Start time (hr:min:sec day/mon/yr)... 08:24:36 05/11/98
Elapsed time (hr:min:sec)..... 08:00:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 82.8
Overall MaxConc (ug/m3)..... 1725.1 at Point#...2422 20 seconds at 1,725 - unknown cause
Overall MinConc (ug/m3)..... 32.6 at Point#...437

DataRAM ID# 2458 - November 6, 1998

Tag Number 1
Number of logged points..... 2949
Start time (hr:min:sec day/mon/yr)... 08:05:59 06/11/98
Elapsed time (hr:min:sec)..... 08:11:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 91.1
Overall MaxConc (ug/m3)..... 489.0 at Point#...2949 10 seconds at 489 at end of day - unknown cause
Overall MinConc (ug/m3)..... 33.0 at Point#...2367

DataRAM ID# 2458 - November 9, 1998

Tag Number 1
Number of logged points..... 1066
Start time (hr:min:sec day/mon/yr)... 08:18:08 09/11/98
Elapsed time (hr:min:sec)..... 02:57:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 17.0
Overall MaxConc (ug/m3)..... 169.4 at Point#...755 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 10, 1998

Tag Number 1
Number of logged points..... 324
Start time (hr:min:sec day/mon/yr)... 08:01:18 10/11/98
Elapsed time (hr:min:sec)..... 00:54:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 19.6
Overall MaxConc (ug/m3)..... 353.2 at Point#...18 10 seconds total at 353 - unknown cause
Overall MinConc (ug/m3)..... 6.1 at Point#...194

DataRAM ID# 2458 - November 11, 1998

Tag Number 1
Number of logged points..... 1678
Start time (hr:min:sec day/mon/yr)... 08:06:08 11/11/98
Elapsed time (hr:min:sec)..... 04:39:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 48.2
Overall MaxConc (ug/m3)..... 383.6 at Point#...1653 20 seconds total at 383 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

4715 St Paul Court - East Summary

DataRAM ID# 2458 - November 5, 1998
Tag Number 1
Number of logged points..... 2860
Start time (hr:min:sec day/mon/yr)... 08:25:52 05/11/98
Elapsed time (hr:min:sec)..... 07:56:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 42.1
Overall MaxConc (ug/m3)..... 689.6 at Point#...2048 20 seconds total at 689 - unknown cause
Overall MinConc (ug/m3)..... 18.4 at Point#...428

DataRAM ID# 2458 - November 6, 1998
Tag Number 1
Number of logged points..... 2902
Start time (hr:min:sec day/mon/yr)... 08:09:47 06/11/98
Elapsed time (hr:min:sec)..... 08:03:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 57.4
Overall MaxConc (ug/m3)..... 222.4 at Point#...2149 20 seconds total at 222 - unknown cause
Overall MinConc (ug/m3)..... 4.8 at Point#...2417

DataRAM ID# 2458 - November 9, 1998
Tag Number 1
Number of logged points..... 1026
Start time (hr:min:sec day/mon/yr)... 08:19:23 09/11/98
Elapsed time (hr:min:sec)..... 02:51:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 12.1
Overall MaxConc (ug/m3)..... 2723.5 at Point#...733 40 seconds total, conc ranging from 357 to 2,723 - unknown cause
Overall MinConc (ug/m3)..... 0.3 at Point#...9

DataRAM ID# 2458 - November 10, 1998
Tag Number 1
Number of logged points..... 317
Start time (hr:min:sec day/mon/yr)... 08:00:13 10/11/98
Elapsed time (hr:min:sec)..... 00:52:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 4.1
Overall MaxConc (ug/m3)..... 225.0 at Point#...7 20 seconds total at 225 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 11, 1998
Tag Number 1
Number of logged points..... 1657
Start time (hr:min:sec day/mon/yr)... 08:04:48 11/11/98
Elapsed time (hr:min:sec)..... 04:36:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 41.8
Overall MaxConc (ug/m3)..... 792.1 at Point#...1300 20 seconds total at 792 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

4715 St Paul Court - East Duplicate Summary

DataRAM ID# 2458 - November 5, 1998

Tag Number 1
Number of logged points..... 2834
Start time (hr:min:sec day/mon/yr)... 08:27:31 05/11/98
Elapsed time (hr:min:sec)..... 07:52:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 27.4
Overall MaxConc (ug/m3)..... 288.3 at Point#...2126 20 seconds total at 288 - unknown cause
Overall MinConc (ug/m3)..... 0.8 at Point#...640

DataRAM ID# 2458 - November 6, 1998

Tag Number 1
Number of logged points..... 2942
Start time (hr:min:sec day/mon/yr)... 08:01:19 06/11/98
Elapsed time (hr:min:sec)..... 08:10:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 48.4
Overall MaxConc (ug/m3)..... 261.7 at Point#...1300 20 seconds total at 261 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...2233

DataRAM ID# 2458 - November 9, 1998

Tag Number 1
Number of logged points..... 1021
Start time (hr:min:sec day/mon/yr)... 08:18:09 09/11/98
Elapsed time (hr:min:sec)..... 02:50:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 12.1
Overall MaxConc (ug/m3)..... 1113.4 at Point#...728 40 seconds total, conc ranging from 402 to 1,113 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 10, 1998

Tag Number 1
Number of logged points..... 310
Start time (hr:min:sec day/mon/yr)... 07:59:56 10/11/98
Elapsed time (hr:min:sec)..... 00:51:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 11.9
Overall MaxConc (ug/m3)..... 217.6 at Point#...224 20 seconds total at 217 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 11, 1998

Tag Number 1
Number of logged points..... 1660
Start time (hr:min:sec day/mon/yr)... 08:02:22 11/11/98
Elapsed time (hr:min:sec)..... 04:36:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 40.4
Overall MaxConc (ug/m3)..... 340.7 at Point#...1301 20 seconds total at 340 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

TABLE 5.11
Total Suspended Particulate Monitoring - 4809 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/9/98	12.0 / 1:04:30	70.8 / 2:12:20	17.7 / 2:33:00	1,150 / 2:06 (MR)**
11/10/98	21.1 / 0:54:40	26.8 / 0:57:20	31.3 / 0:53:30	20 / 0:51 (MR)
11/11/98	58.2 / 3:25:30	63.9 / 3:22:30	54.3 / 3:22:10	50 / 3:12 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

** - Windrose data indicate wind direction to south/southwest.



4809 Clayton Street - North Summary

DataRAM ID# 2458 - November 9, 1998
Tag Number 1
Number of logged points..... 387
Start time (hr:min:sec day/mon/yr)... 10:00:08 09/11/98
Elapsed time (hr:min:sec)..... 01:04:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 12.0
Overall MaxConc (ug/m3)..... 120.4 at Point#...257 N/A
Overall MinConc (ug/m3)..... 4.0 at Point#...384

DataRAM ID# 2458 - November 10, 1998
Tag Number 1
Number of logged points..... 328
Start time (hr:min:sec day/mon/yr)... 07:50:04 10/11/98
Elapsed time (hr:min:sec)..... 00:54:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 21.1
Overall MaxConc (ug/m3)..... 266.7 at Point#...102 20 seconds total at 266 - unknown cause
Overall MinConc (ug/m3)..... 3.6 at Point#...258

DataRAM ID# 2458 - November 11, 1998
Tag Number 1
Number of logged points..... 1233
Start time (hr:min:sec day/mon/yr)... 07:49:49 11/11/98
Elapsed time (hr:min:sec)..... 03:25:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 58.2
Overall MaxConc (ug/m3)..... 623.0 at Point#...603 20 seconds total at 623 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

4809 Clayton Street - South Summary

DataRAM ID# 2458 - November 9, 1998
Tag Number 1
Number of logged points..... 794
Start time (hr:min:sec day/mon/yr)... 08:50:49 09/11/98
Elapsed time (hr:min:sec)..... 02:12:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 70.8
Overall MaxConc (ug/m3)..... 532.0 at Point#...608 Unknown
Overall MinConc (ug/m3)..... 44.1 at Point#...1

DataRAM ID# 2458 - November 10, 1998
Tag Number 1
Number of logged points..... 344
Start time (hr:min:sec day/mon/yr)... 07:47:17 10/11/98
Elapsed time (hr:min:sec)..... 00:57:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 26.8
Overall MaxConc (ug/m3)..... 106.9 at Point#...116 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 11, 1998
Tag Number 1
Number of logged points..... 1215
Start time (hr:min:sec day/mon/yr)... 07:51:26 11/11/98
Elapsed time (hr:min:sec)..... 03:22:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 63.9
Overall MaxConc (ug/m3)..... 2157.8 at Point#...547 40 seconds total, conc ranging from 201 to 2,157 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

4809 Clayton Street - East Summary

DataRAM ID# 2458 - November 9, 1998
Tag Number 1
Number of logged points..... 918
Start time (hr:min:sec day/mon/yr)... 08:31:32 09/11/98
Elapsed time (hr:min:sec)..... 02:33:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 17.7
Overall MaxConc (ug/m3)..... 168.3 at Point#...895 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...868

DataRAM ID# 2458 - November 10, 1998
Tag Number 1
Number of logged points..... 321
Start time (hr:min:sec day/mon/yr)... 07:47:29 10/11/98
Elapsed time (hr:min:sec)..... 00:53:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 31.3
Overall MaxConc (ug/m3)..... 1989.9 at Point#...95 20 seconds total at 1,989 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 11, 1998
Tag Number 1
Number of logged points..... 1213
Start time (hr:min:sec day/mon/yr)... 07:50:35 11/11/98
Elapsed time (hr:min:sec)..... 03:22:10
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 54.3
Overall MaxConc (ug/m3)..... 379.2 at Point#...846 20 seconds total at 379 - unknown cause
Overall MinConc (ug/m3)..... 25.9 at Point#...733



TABLE 5.12
Total Suspended Particulate Monitoring - 4690 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/12/98	23.9 / 8:45:20	41.3 / 8:40:00	92.1 / 8:41:10	30 / 9:00 (MR)
11/13/98	8.8 / 1:42:40	27.9 / 1:54:00	45.8 / 1:39:00	*MR

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not recorded in log book for 1.5 hour run time.



4690 Clayton Street - North Summary

DataRAM ID# 2458 - November 12, 1998

Tag Number 1

Number of logged points..... 3152

Start time (hr:min:sec day/mon/yr)... 07:52:52 12/11/98

Elapsed time (hr:min:sec)..... 08:45:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 23.9

Overall MaxConc (ug/m3)..... 3365.7 at Point#...2882

Overall MinConc (ug/m3)..... 0.0 at Point#...595

70 seconds total, conc ranging from 232 to 3,365 - due to loading of excavated soil

DataRAM ID# 2458 - November 13, 1998

Tag Number 1

Number of logged points..... 616

Start time (hr:min:sec day/mon/yr)... 08:02:39 13/11/98

Elapsed time (hr:min:sec)..... 01:42:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 8.8

Overall MaxConc (ug/m3)..... 60.9 at Point#...310

Overall MinConc (ug/m3)..... 0.0 at Point#...1

N/A

4690 Clayton Street - South Summary

DataRAM ID# 2458 - November 12, 1998

Tag Number 1
Number of logged points..... 3120
Start time (hr:min:sec day/mon/yr)... 07:55:43 12/11/98
Elapsed time (hr:min:sec)..... 08:40:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 41.3
Overall MaxConc (ug/m3)..... 1783.1 at Point#...2396
Overall MinConc (ug/m3)..... 0.0 at Point#...1

50 seconds total, conc ranging from 269 to 1,783 - due to loading of excavated soil

DataRAM ID# 2458 - November 13, 1998

Tag Number 1
Number of logged points..... 684
Start time (hr:min:sec day/mon/yr)... 08:03:05 13/11/98
Elapsed time (hr:min:sec)..... 01:54:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 27.9
Overall MaxConc (ug/m3)..... 129.8 at Point#...639
Overall MinConc (ug/m3)..... 0.0 at Point#...1

N/A

4690 Clayton Street - East Summary

DataRAM ID# 2458 - November 12, 1998

Tag Number 1

Number of logged points..... 3127

Start time (hr:min:sec day/mon/yr)... 07:54:05 12/11/98

Elapsed time (hr:min:sec)..... 08:41:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 92.1

Overall MaxConc (ug/m3)..... 29093.0 at Point#...2929

Overall MinConc (ug/m3)..... 7.2 at Point#...861

100 seconds total, conc ranging from 277 to 29,093 - due to loading of excavated soil

DataRAM ID# 2458 - November 13, 1998

Tag Number 1

Number of logged points..... 594

Start time (hr:min:sec day/mon/yr)... 08:02:11 13/11/98

Elapsed time (hr:min:sec)..... 01:39:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 45.8

Overall MaxConc (ug/m3)..... 1105.6 at Point#...306

Overall MinConc (ug/m3)..... 0.0 at Point#...1

60 seconds total, conc ranging from 424 to 1,105 - due to loading of excavated soil



TABLE 5.13
Total Suspended Particulate Monitoring - 3818 Madison Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/12/98	19.4 / 7:55:00	19.1 / 7:51:30	5.8 / 7:43:00	10 / 7:55 (MR)
			4.7 / 7:42:40	
11/13/98	14.1 / 7:03:30	14.8 / 7:05:30	17.0 / 7:20:50	10 / 7:10 (MR)
			15.9 / 7:21:20	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



3818 Madison Street - North Summary

DataRAM ID# 2458 - November 12, 1998

Tag Number 1

Number of logged points..... 2850

Start time (hr:min:sec day/mon/yr)... 08:32:17 12/11/98

Elapsed time (hr:min:sec)..... 07:55:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 19.4

Overall MaxConc (ug/m3)..... 398.6 at Point#...563 20 seconds total at 398 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 13, 1998

Tag Number 1

Number of logged points..... 2541

Start time (hr:min:sec day/mon/yr)... 08:16:19 13/11/98

Elapsed time (hr:min:sec)..... 07:03:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 14.1

Overall MaxConc (ug/m3)..... 232.5 at Point#...876 20 seconds total at 232 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

3818 Madison Street - South Summary

DataRAM ID# 2458 - November 12, 1998
Tag Number 1
Number of logged points..... 2829
Start time (hr:min:sec day/mon/yr)... 08:32:50 12/11/98
Elapsed time (hr:min:sec)..... 07:51:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 19.1
Overall MaxConc (ug/m3)..... 1281.9 at Point#...2659 20 seconds total at 1,281 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 13, 1998
Tag Number 1
Number of logged points..... 2553
Start time (hr:min:sec day/mon/yr)... 08:20:18 13/11/98
Elapsed time (hr:min:sec)..... 07:05:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 14.8
Overall MaxConc (ug/m3)..... 1574.2 at Point#...2549 10 seconds total at 1,574 - unknown cause
Overall MinConc (ug/m3)..... 0.0 at Point#...1268

3818 Madison Street - East Summary

"DataRAM ID# 2458" - November 12, 1998
"Tag Number 1"
"Number of logged points..... 2778"
"Start time (hr:min:sec day/mon/yr)... 08:35:41 12/11/98"
"Elapsed time (hr:min:sec)..... 07:43:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 5.8"
"Overall MaxConc (ug/m3)..... 306.5 at Point#...2560" 20 seconds total at 306 - Loading of excavated soil
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

"DataRAM ID# 2458" - November 13, 1998
"Tag Number 1"
"Number of logged points..... 2645"
"Start time (hr:min:sec day/mon/yr)... 08:16:54 13/11/98"
"Elapsed time (hr:min:sec)..... 07:20:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 17.0"
"Overall MaxConc (ug/m3)..... 691.0 at Point#...960" 40 seconds total, conc ranging from 323 to 691 - Loading of excavated soil
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

3818 Madison Street - East Duplicate Summary

DataRAM ID# 2458 - November 12, 1998
Tag Number 1
Number of logged points..... 2776
Start time (hr:min:sec day/mon/yr)... 08:33:42 12/11/98
Elapsed time (hr:min:sec)..... 07:42:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 4.7
Overall MaxConc (ug/m3)..... 158.3 at Point#...274 N/A
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 13, 1998
Tag Number 1
Number of logged points..... 2648
Start time (hr:min:sec day/mon/yr)... 08:14:02 13/11/98
Elapsed time (hr:min:sec)..... 07:21:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 15.9
Overall MaxConc (ug/m3)..... 915.6 at Point#...966 40 seconds total, conc ranging from 285 to 915 - Loading of excavated soil
Overall MinConc (ug/m3)..... 0.0 at Point#...1

TABLE 5.14
Total Suspended Particulate Monitoring - 4641 Clayton Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/16/98	34.8 / 7:32:20	18.1 / 7:38:10	20.4 / 7:43:40	*MR
			27.6 / 7:44:20	
11/17/98	25.0 / 7:08:30	23.4 / 7:13:40	37.6 / 7:18:00	*MR
			29.1 / 7:17:30	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not reported due to lost log book for entries on 11/16/98 and 11/17/98.



4641 Clayton Street - North Summary

DataRAM ID# 2458 - November 16, 1998

Tag Number 1

Number of logged points..... 2714

Start time (hr:min:sec day/mon/yr)... 08:36:26 16/11/98

Elapsed time (hr:min:sec)..... 07:32:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 34.8

Overall MaxConc (ug/m3)..... 1924.7 at Point#...1922

20 seconds total at 1,924 - Loading of excavated soil

Overall MinConc (ug/m3)..... 0.0 at Point#...466

DataRAM ID# 2458 - November 17, 1998

Tag Number 1

Number of logged points..... 2571

Start time (hr:min:sec day/mon/yr)... 08:09:28 17/11/98

Elapsed time (hr:min:sec)..... 07:08:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 25.0

Overall MaxConc (ug/m3)..... 1105.0 at Point#...2517

30 seconds total, conc ranging from 491 to 1,105 - Loading of excavated soil

Overall MinConc (ug/m3)..... 2.5 at Point#...1

4641 Clayton Street - South Summary

DataRAM ID# 2458 - November 16, 1998

Tag Number 1

Number of logged points..... 2749

Start time (hr:min:sec day/mon/yr)... 08:37:55 16/11/98

Elapsed time (hr:min:sec)..... 07:38:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 18.1

Overall MaxConc (ug/m3)..... 382.7 at Point#...148

Overall MinConc (ug/m3)..... 0.0 at Point#...466

10 seconds total at 382 - unknown cause

DataRAM ID# 2458 - November 17, 1998

Tag Number 1

Number of logged points..... 2602

Start time (hr:min:sec day/mon/yr)... 08:06:41 17/11/98

Elapsed time (hr:min:sec)..... 07:13:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 23.4

Overall MaxConc (ug/m3)..... 399.7 at Point#...2528

Overall MinConc (ug/m3)..... 3.0 at Point#...1

20 seconds total at 399 - unknown cause

4641 Clayton Street - East Summary

DataRAM ID# 2458 - November 16, 1998

Tag Number 1

Number of logged points..... 2782

Start time (hr:min:sec day/mon/yr)... 08:29:44 16/11/98

Elapsed time (hr:min:sec)..... 07:43:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 20.4

Overall MaxConc (ug/m3)..... 1083.5 at Point#...1712

Overall MinConc (ug/m3)..... 0.0 at Point#...192

40 seconds total, conc ranging from 331 to 1,083 - Loading of excavated soil

DataRAM ID# 2458 - November 17, 1998

Tag Number 1

Number of logged points..... 2628

Start time (hr:min:sec day/mon/yr)... 08:04:23 17/11/98

Elapsed time (hr:min:sec)..... 07:18:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 37.6

Overall MaxConc (ug/m3)..... 511.9 at Point#...559

Overall MinConc (ug/m3)..... 6.6 at Point#...1

20 seconds total at 511 - unknown cause

4641 Clayton Street - East Duplicate Summary

DataRAM ID# 2458 - November 16, 1998

Tag Number 1

Number of logged points..... 2786

Start time (hr:min:sec day/mon/yr)... 08:27:13 16/11/98

Elapsed time (hr:min:sec)..... 07:44:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 27.6

Overall MaxConc (ug/m3)..... 3170.3 at Point#...2021 40 seconds total, conc ranging from 698 to 3,170 - Loading of excavated soil

Overall MinConc (ug/m3)..... 0.0 at Point#...445

DataRAM ID# 2458 - November 17, 1998

Tag Number 1

Number of logged points..... 2625

Start time (hr:min:sec day/mon/yr)... 08:02:39 17/11/98

Elapsed time (hr:min:sec)..... 07:17:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 29.1

Overall MaxConc (ug/m3)..... 198.6 at Point#...1338 N/A

Overall MinConc (ug/m3)..... 1.7 at Point#...1

TABLE 5.15
Total Suspended Particulate Monitoring - 3825 Adams Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/17/98	17.5 / 7:56:50	18.7 / 8:01:00	73.1 / 8:00:40	*MR
11/18/98	N/C	7.4 / 7:36:30	8.4 / 7:34:10	30 / 7:45 (MR)
11/19/98	33.1 / 3:18:00	31.2 / 3:15:40	30.0 / 3:17:20	280 / 3:20 (MR)

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.

*MR - Mini RAM data not reported due to lost log book for entries on 11/17/98.



3825 Adams Street - North Summary

DataRAM ID# 2458 - November 17, 1998
Tag Number 1
Number of logged points..... 2861
Start time (hr:min:sec day/mon/yr)... 08:29:33 17/11/98
Elapsed time (hr:min:sec)..... 07:56:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 17.5
Overall MaxConc (ug/m3)..... 425.3 at Point#...2042
Overall MinConc (ug/m3)..... 3.7 at Point#...868

30 seconds total, conc ranging from 273 to 425 - loading of excavated soil

DataRAM ID# 2458 - November 19, 1998
Tag Number 1
Number of logged points..... 1188
Start time (hr:min:sec day/mon/yr)... 08:08:12 19/11/98
Elapsed time (hr:min:sec)..... 03:18:00
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 33.1
Overall MaxConc (ug/m3)..... 153.0 at Point#...923

N/A

3825 Adams Street - South Summary

DataRAM ID# 2458 - November 17, 1998

Tag Number 1

Number of logged points..... 2886

Start time (hr:min:sec day/mon/yr)... 08:27:08 17/11/98

Elapsed time (hr:min:sec)..... 08:01:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 18.7

Overall MaxConc (ug/m3)..... 796.8 at Point#...2457

Overall MinConc (ug/m3)..... 2.7 at Point#...2675

40 seconds total, conc ranging from 249 to 796 - loading of excavated soil

DataRAM ID# 2458 - November 18, 1998

Tag Number 1

Number of logged points..... 2739

Start time (hr:min:sec day/mon/yr)... 08:21:27 18/11/98

Elapsed time (hr:min:sec)..... 07:36:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 7.4

Overall MaxConc (ug/m3)..... 1806.4 at Point#...1008

Overall MinConc (ug/m3)..... 0.0 at Point#...8

20 seconds total at 1,806 - unknown cause

DataRAM ID# 2458 - November 19, 1998

Tag Number 1

Number of logged points..... 1174

Start time (hr:min:sec day/mon/yr)... 08:11:09 19/11/98

Elapsed time (hr:min:sec)..... 03:15:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 31.2

Overall MaxConc (ug/m3)..... 330.1 at Point#...967

Overall MinConc (ug/m3)..... 0.0 at Point#...1

40 seconds total, conc ranging from 205 to 330 - loading of excavated soil

3825 Adams Street - East Summary

DataRAM ID# 2458 - Novvember 17, 1998

Tag Number 1

Number of logged points..... 2884

Start time (hr:min:sec day/mon/yr)... 08:23:24 17/11/98

Elapsed time (hr:min:sec)..... 08:00:40

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 73.1

Overall MaxConc (ug/m3)..... 791.4 at Point#...2736

Overall MinConc (ug/m3)..... 59.2 at Point#...2770

30 seconds total, conc ranging from 456 to 791 - loading of excavated soil

DataRAM ID# 2458 - November 18, 1998

Tag Number 1

Number of logged points..... 2725

Start time (hr:min:sec day/mon/yr)... 08:16:25 18/11/98

Elapsed time (hr:min:sec)..... 07:34:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 8.4

Overall MaxConc (ug/m3)..... 427.2 at Point#...2105

Overall MinConc (ug/m3)..... 0.0 at Point#...7

20 seconds total at 427 - unknown cause

DataRAM ID# 2458 - November 19, 1998

Tag Number 1

Number of logged points..... 1184

Start time (hr:min:sec day/mon/yr)... 08:05:28 19/11/98

Elapsed time (hr:min:sec)..... 03:17:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 30.0

Overall MaxConc (ug/m3)..... 54.5 at Point#...584

Overall MinConc (ug/m3)..... 0.0 at Point#...1

N/A



TABLE 5.16
Total Suspended Particulate Monitoring - 4044 Steele Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
			East Duplicate/ Hr:Min:Sec	
11/19/98	29.3 / 7:42:30	28.1 / 7:59:30	62.7 / 7:47:00	70 / 8:00 (MR)
			57.4 / 7:42:20	
11/20/98	15.8 / 8:09:50	11.5 / 7:51:20	95.3 / 8:17:50	100 / 8:30 (MR)
			86.9 / 8:11:50	
11/21/98	Weekend - No excavation/monitoring			
11/22/98	Weekend - No excavation/monitoring			
11/23/98	175.8 / 0:25:30	24.5 / 3:07:30	96.7 / 2:50:10	10 / 2:55 (MR)
			90.2 / 2:49:40	

N/C - Data RAM not collecting due to programming errors

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



4044 Steele Street - North Summary

DataRAM ID# 2458 - November 19, 1998

Tag Number 1
Number of logged points..... 2775
Start time (hr:min:sec day/mon/yr)... 08:24:50 19/11/98
Elapsed time (hr:min:sec)..... 07:42:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 29.3
Overall MaxConc (ug/m3)..... 309.9 at Point#...1876
Overall MinConc (ug/m3)..... 3.4 at Point#...1

20 seconds total at 309 - unknown cause

DataRAM ID# 2458 - November 20, 1998

Tag Number 1
Number of logged points..... 2939
Start time (hr:min:sec day/mon/yr)... 07:45:12 20/11/98
Elapsed time (hr:min:sec)..... 08:09:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 15.8
Overall MaxConc (ug/m3)..... 643.5 at Point#...839
Overall MinConc (ug/m3)..... 0.0 at Point#...1

30 seconds total, conc ranging from 288 to 643 - loading of excavated soil

DataRAM ID# 2458 - November 23, 1998

Tag Number 1
Number of logged points..... 153
Start time (hr:min:sec day/mon/yr)... 08:48:43 23/11/98
Elapsed time (hr:min:sec)..... 00:25:30
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 175.8
Overall MaxConc (ug/m3)..... 1691.7 at Point#...9
Overall MinConc (ug/m3)..... 0.0 at Point#...1

50 seconds total, conc ranging from 333 to 1,691 - loading of excavated soil

4044 Steele Street - South Summary

DataRAM ID# 2458 - November 19, 1998

Tag Number 1

Number of logged points..... 2877

Start time (hr:min:sec day/mon/yr)... 08:26:20 19/11/98

Elapsed time (hr:min:sec)..... 07:59:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 28.1

Overall MaxConc (ug/m3)..... 816.2 at Point#...2829

Overall MinConc (ug/m3)..... 2.5 at Point#...2633

40 seconds total, conc ranging from 274 to 816 - loading of excavated soil

DataRAM ID# 2458 - November 20, 1998

Tag Number 1

Number of logged points..... 2828

Start time (hr:min:sec day/mon/yr)... 07:52:30 20/11/98

Elapsed time (hr:min:sec)..... 07:51:20

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 11.5

Overall MaxConc (ug/m3)..... 368.8 at Point#...2429

Overall MinConc (ug/m3)..... 0.0 at Point#...1121

20 seconds total at 368 - unknown cause

DataRAM ID# 2458 - November 23, 1998

Tag Number 1

Number of logged points..... 1125

Start time (hr:min:sec day/mon/yr)... 08:43:41 23/11/98

Elapsed time (hr:min:sec)..... 03:07:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 24.5

Overall MaxConc (ug/m3)..... 2052.8 at Point#...862

Overall MinConc (ug/m3)..... 0.0 at Point#...870

10 seconds total at 2,052 - unknown cause

4044 Steele Street - East Summary

"DataRAM ID# 2458" - November 19, 1998

"Tag Number 1"
"Number of logged points..... 2802"
"Start time (hr:min:sec day/mon/yr)... 08:30:12 19/11/98"
"Elapsed time (hr:min:sec)..... 07:47:00"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 62.7"
"Overall MaxConc (ug/m3)..... 2392.0 at Point#...2199"
"Overall MinConc (ug/m3)..... 7.2 at Point#...2505"

60 seconds total, conc ranging from 498 to 2,392 - loading of excavated soil

"DataRAM ID# 2458" - November 20, 1998

"Tag Number 1"
"Number of logged points..... 2987"
"Start time (hr:min:sec day/mon/yr)... 07:45:42 20/11/98"
"Elapsed time (hr:min:sec)..... 08:17:50"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 95.3"
"Overall MaxConc (ug/m3)..... 4099.1 at Point#...1099"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

50 seconds total, conc ranging from 243 to 4,099 - loading of excavated soil

"DataRAM ID# 2458" - November 23, 1998

"Tag Number 1"
"Number of logged points..... 1021"
"Start time (hr:min:sec day/mon/yr)... 08:46:01 23/11/98"
"Elapsed time (hr:min:sec)..... 02:50:10"
"Averaging Time (sec)..... 10"
"Logging period (hr:min:sec)..... 00:00:10"
"CalFactor (%)..... 100"
"StelConc (ug/m3)..... 0.0"
"STEL occurrence after start (hr:min:sec)..... 00:00:00"
"Overall AvgConc (ug/m3)..... 96.7"
"Overall MaxConc (ug/m3)..... 2173.6 at Point#...802"
"Overall MinConc (ug/m3)..... 0.0 at Point#...1"

40 seconds total, conc ranging from 606 to 2,173 - loading of excavated soil

4044 Steele Street - East Duplicate Summary

DataRAM ID# 2458 - November 19, 1998
Tag Number 1
Number of logged points..... 2774
Start time (hr:min:sec day/mon/yr)... 08:28:23 19/11/98
Elapsed time (hr:min:sec)..... 07:42:20
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 57.4
Overall MaxConc (ug/m3)..... 2356.0 at Point#...2603 Unknown
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 20, 1998
Tag Number 1
Number of logged points..... 2951
Start time (hr:min:sec day/mon/yr)... 07:43:40 20/11/98
Elapsed time (hr:min:sec)..... 08:11:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 86.9
Overall MaxConc (ug/m3)..... 3348.7 at Point#...1099 40 seconds total, conc ranging from 430 to 3,348 - loading of excavated soil
Overall MinConc (ug/m3)..... 0.0 at Point#...1

DataRAM ID# 2458 - November 23, 1998
Tag Number 1
Number of logged points..... 1018
Start time (hr:min:sec day/mon/yr)... 08:44:11 23/11/98
Elapsed time (hr:min:sec)..... 02:49:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 90.2
Overall MaxConc (ug/m3)..... 2428.9 at Point#...451 40 seconds total, conc ranging from 216 to 2,428 - loading of excavated soil
Overall MinConc (ug/m3)..... 0.0 at Point#...1

TABLE 5.17
Total Suspended Particulate Monitoring - 3535 Humboldt Street

Date	Average Concentrations of Total Suspended Particulates (TSP) given in $\mu\text{g}/\text{m}^3$ Over Total Elapsed Run Time (ET) For Given Day - Data RAM used for Monitoring Unless Otherwise Noted as Mini RAM (MR)			
	North / Hr:Min:Sec	South / Hr:Min:Sec	East / Hr:Min:Sec	West / Hr:Min
11/20/98	20.4 / 5:42:10	47.3 / 5:52:40	14.6 / 5:46:40	10 / 6:00 (MR)
11/21/98	Weekend - No excavation/monitoring			
11/22/98	Weekend - No excavation/monitoring			
11/23/98	32.8 / 8:15:30	36.7 / 8:19:50	36.7 / 8:15:00	10 / 8:20 (MR)

MR- Mini RAM - No data logging capability, direct read only. Mini RAM data average of 4.3 times higher than Data RAM data- refer to text discussion in Section 5.0.



3535 Humboldt Street - North Summary

DataRAM ID# 2458 - November 20, 1998

Tag Number 1

Number of logged points..... 2053

Start time (hr:min:sec day/mon/yr)... 10:36:57 20/11/98

Elapsed time (hr:min:sec)..... 05:42:10

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 20.4

Overall MaxConc (ug/m3)..... 1427.0 at Point#...1269

Overall MinConc (ug/m3)..... 0.0 at Point#...1

40 seconds total, conc ranging from 216 to 1,427
likely due to loading of excavated soils

DataRAM ID# 2458 - November 23, 1998

Tag Number 1

Number of logged points..... 2973

Start time (hr:min:sec day/mon/yr)... 07:40:32 23/11/98

Elapsed time (hr:min:sec)..... 08:15:30

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 32.8

Overall MaxConc (ug/m3)..... 10139.1 at Point#...1012

Overall MinConc (ug/m3)..... 1.5 at Point#...1167

20 seconds total at 10,139 - unknown cause

3535 Humboldt Street - South Summary

DataRAM ID# 2458 - November 20, 1998

Tag Number 1
Number of logged points..... 2116
Start time (hr:min:sec day/mon/yr)... 10:40:32 20/11/98
Elapsed time (hr:min:sec)..... 05:52:40
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 47.3
Overall MaxConc (ug/m3)..... 3584.5 at Point#...1885
Overall MinConc (ug/m3)..... 0.0 at Point#...1

260 seconds total, conc ranging from 161 to 3,584
Due to loading of excavated soils

DataRAM ID# 2458 - November 23, 1998

Tag Number 1
Number of logged points..... 2999
Start time (hr:min:sec day/mon/yr)... 07:44:01 23/11/98
Elapsed time (hr:min:sec)..... 08:19:50
Averaging Time (sec)..... 10
Logging period (hr:min:sec)..... 00:00:10
CalFactor (%)..... 100
StelConc (ug/m3)..... 0.0
STEL occurrence after start (hr:min:sec)..... 00:00:00
Overall AvgConc (ug/m3)..... 36.7
Overall MaxConc (ug/m3)..... 2503.9 at Point#...258
Overall MinConc (ug/m3)..... 0.0 at Point#...1

20 seconds total at 2,503 - unknown cause

3535 Humboldt Street - East Summary

DataRAM ID# 2458

Tag Number 1

Number of logged points..... 2076

Start time (hr:min:sec day/mon/yr)... 10:33:04 20/11/98

Elapsed time (hr:min:sec)..... 05:46:00

Averaging Time (sec)..... 10

Logging period (hr:min:sec)..... 00:00:10

CalFactor (%)..... 100

StelConc (ug/m3)..... 0.0

STEL occurrence after start (hr:min:sec)..... 00:00:00

Overall AvgConc (ug/m3)..... 14.6

Overall MaxConc (ug/m3)..... 1717.4 at Point#...1902

20 seconds total at 1,717 - unknown cause

Overall MinConc (ug/m3)..... 0.0 at Point#...1

November 23, 1998 - Downloaded Data Accidentally deleted -
TWA For entire day - 36.7 ug/m3 - run time 8:15:00

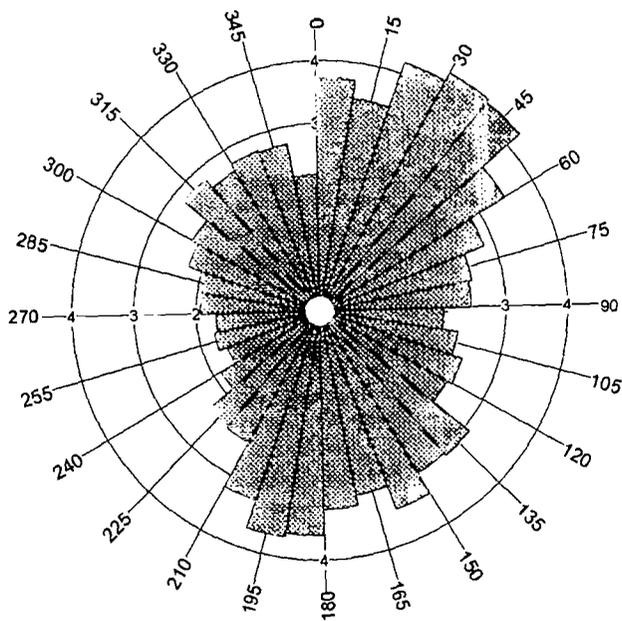
APPENDIX C

Windrose Diagrams

Color Chart(s)

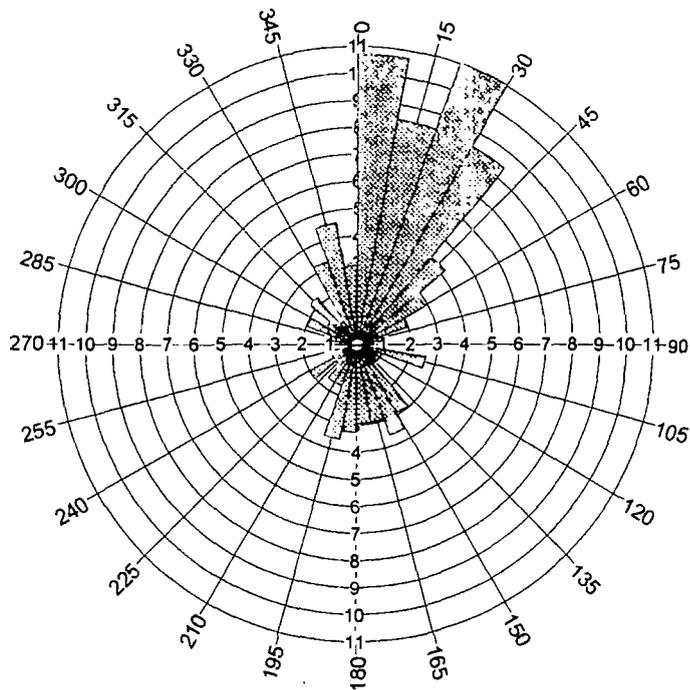
The following pages
contain color that does
not appear in the scanned
images.

To view the actual images,
please contact the
Superfund Records Center
at (303) 312-6473.



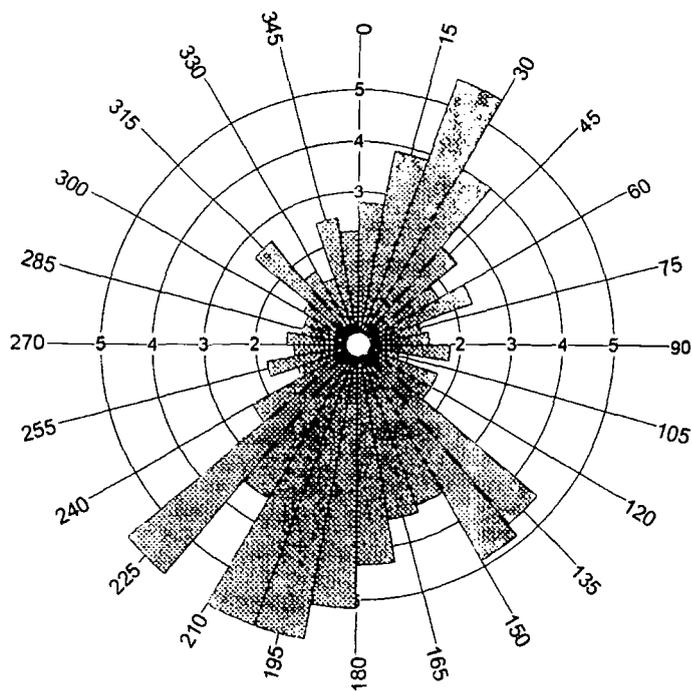
October 22 to November 23, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 22.952
 Maximum Percentage 4.3 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 0.75 Percent
 Vector Mean 67.22 Degrees
 Confidence Interval ... 14.92 Degrees
 R-mag 0.09



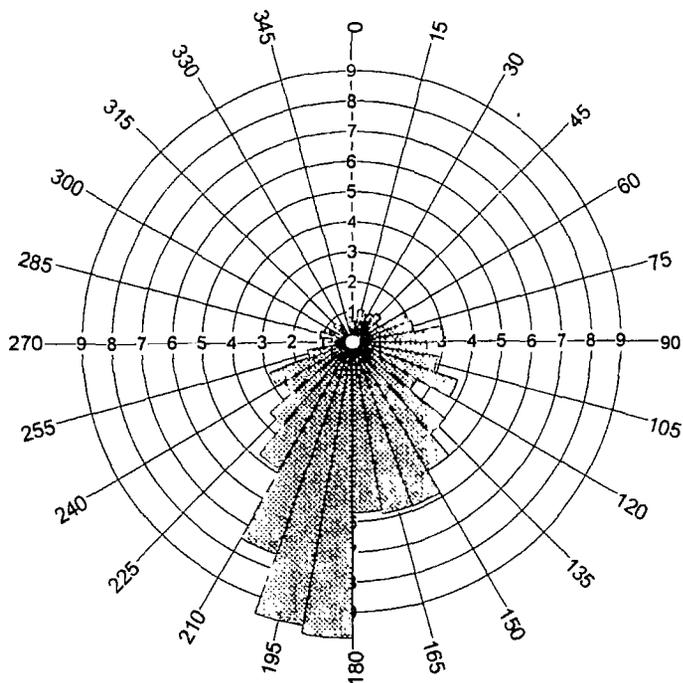
October 22, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 308
 Maximum Percentage 11 Percent
 Mean Percentage 2.9 Percent
 Standard Deviation 2.77 Percent
 Vector Mean 25.98 Degrees
 Confidence Interval ... 31.91 Degrees
 R-mag 0.35



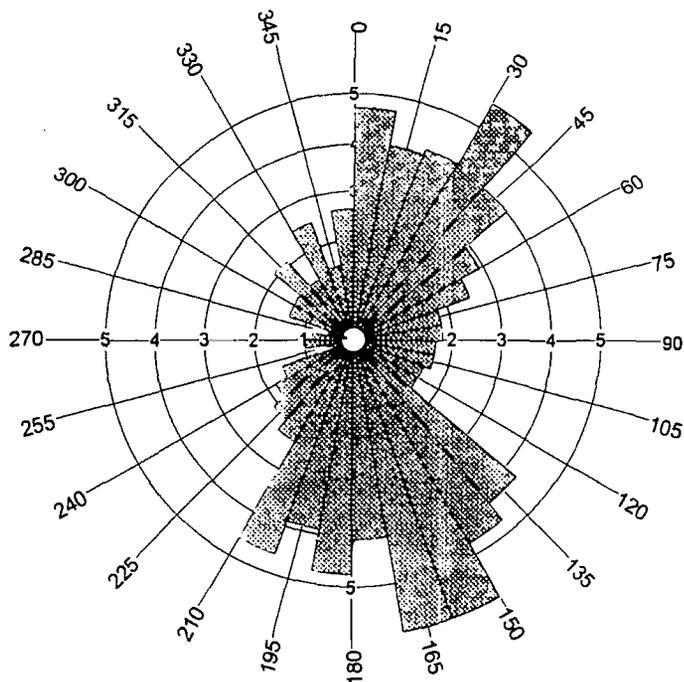
October 23, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 721
 Maximum Percentage 5.8 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.58 Percent
 Vector Mean 169.15 Degrees
 Confidence Interval ... 46.95 Degrees
 R-mag 0.16



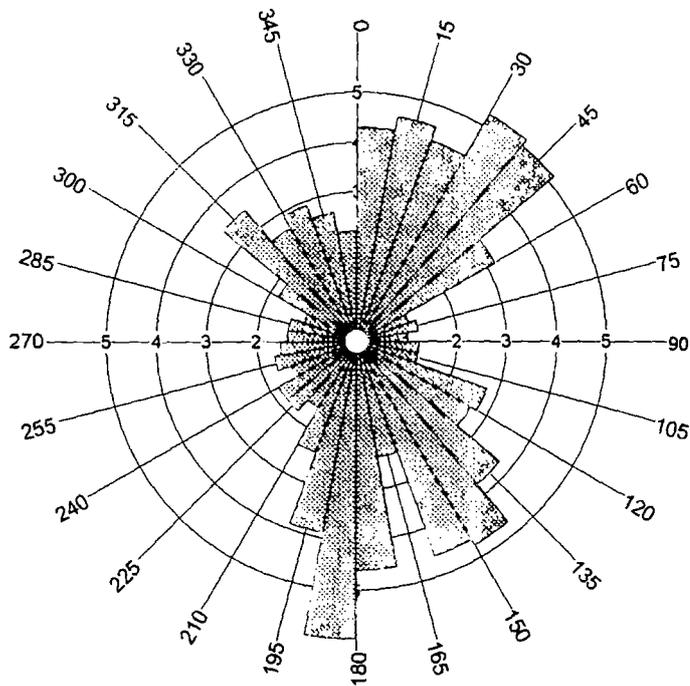
October 24, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 9.9 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 2.55 Percent
 Vector Mean 170.91 Degrees
 Confidence Interval ... 12.83 Degrees
 R-mag 0.54



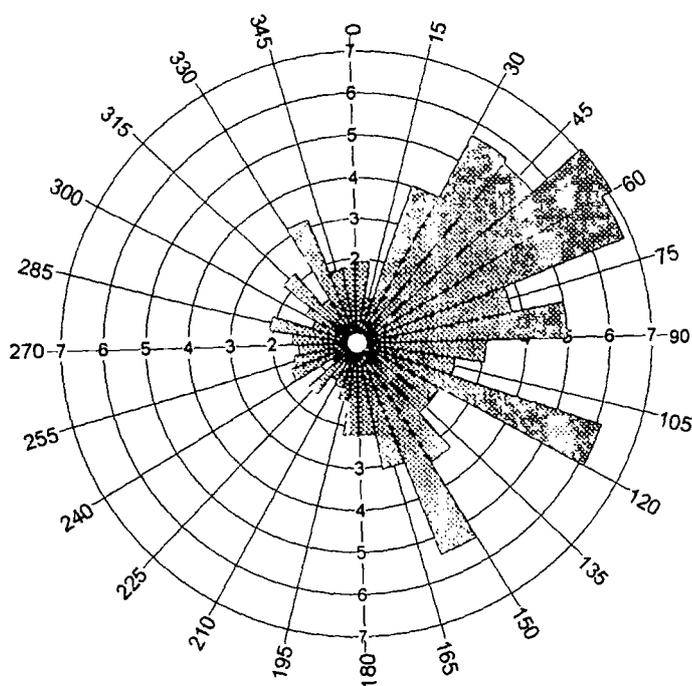
October 25, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.61 Percent
 Vector Mean 115.46 Degrees
 Confidence Interval ... 42.18 Degrees
 R-mag 0.18



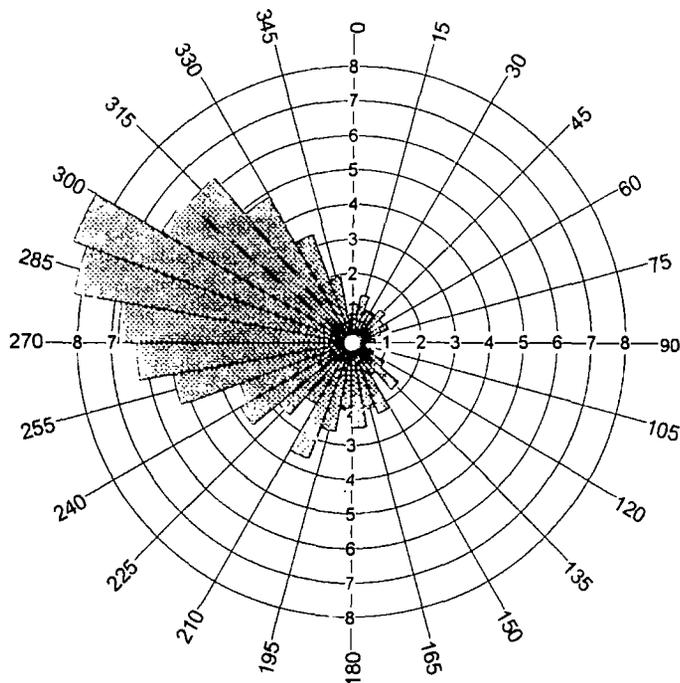
October 26, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.45 Percent
 Vector Mean 85.39 Degrees
 Confidence Interval ... 82.07 Degrees
 R-mag 0.09



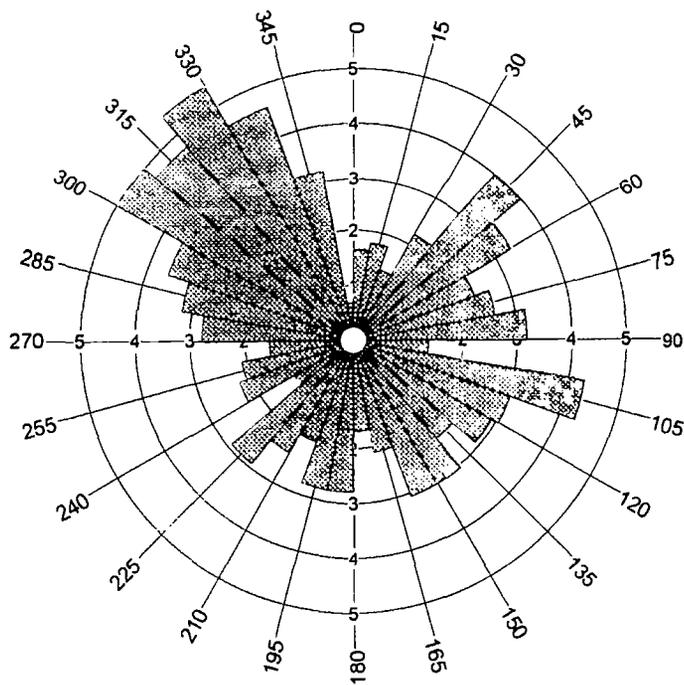
October 27, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 7.1 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.79 Percent
 Vector Mean 75.72 Degrees
 Confidence Interval ... 22.3 Degrees
 R-mag 0.33



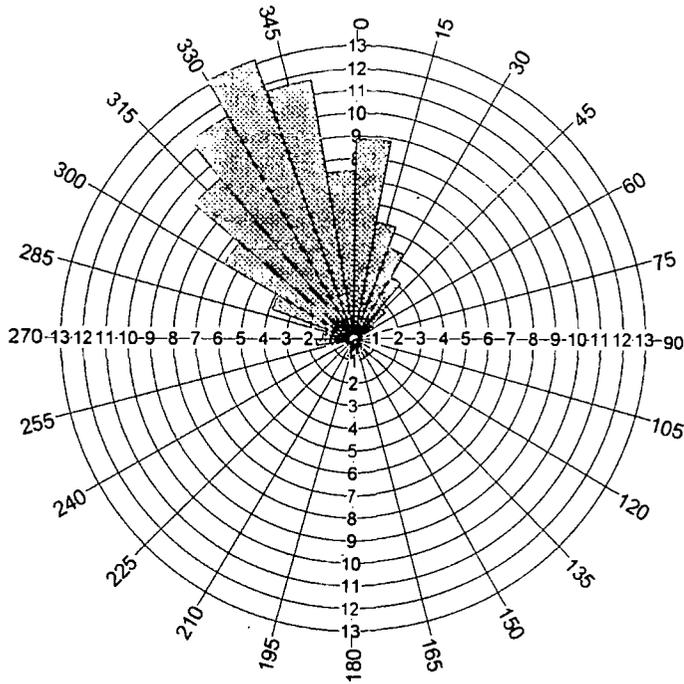
October 28, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 8.6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 2.32 Percent
 Vector Mean 85.93 Degrees
 Confidence Interval ... 14.35 Degrees
 R-mag 0.49



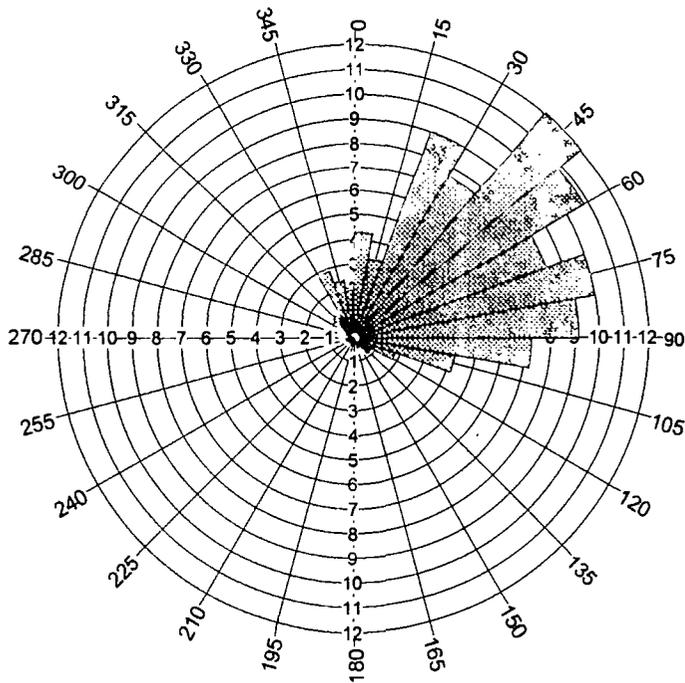
October 29, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 5.4 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.11 Percent
 Vector Mean 19.95 Degrees
 Confidence Interval ... 109.67 Degrees
 R-mag 0.07



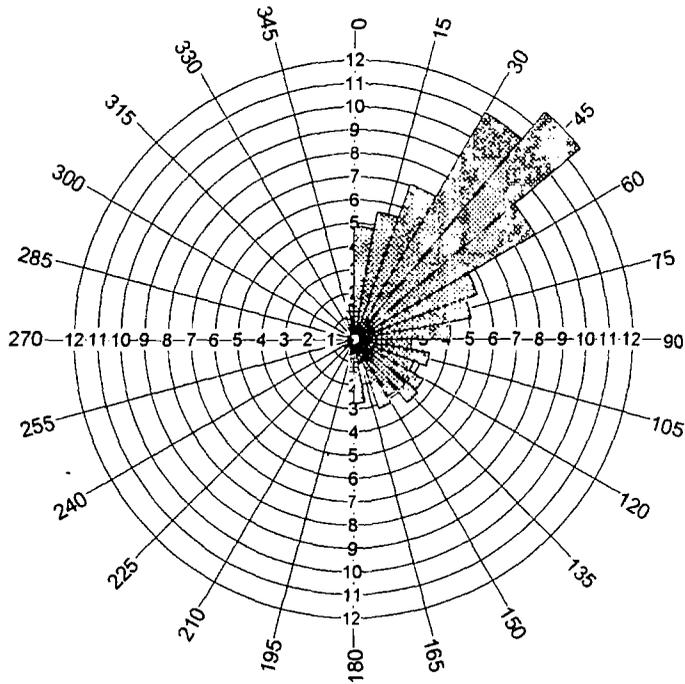
October 30, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 13.2 Percent
 Mean Percentage 3.1 Percent
 Standard Deviation 3.96 Percent
 Vector Mean 21.66 Degrees
 Confidence Interval ... 7.82 Degrees
 R-mag 0.76



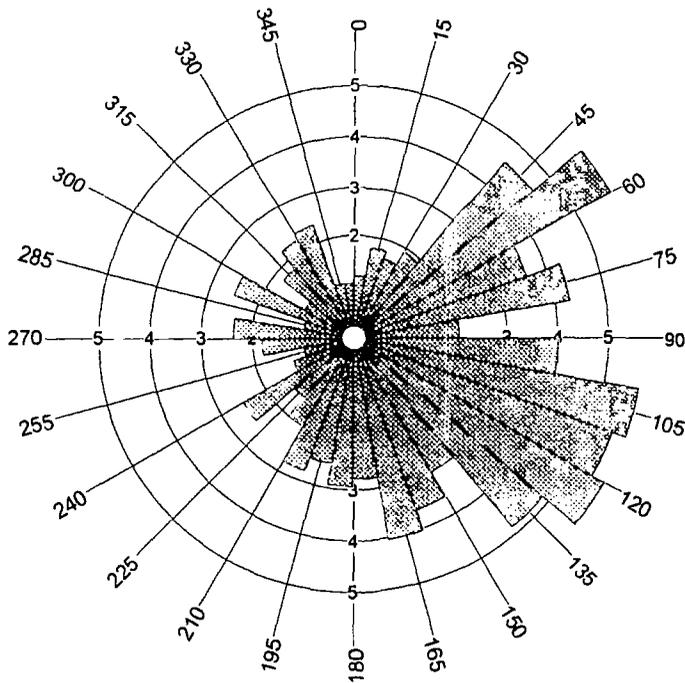
November 2, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 12.1 Percent
 Mean Percentage 4.5 Percent
 Standard Deviation 3.94 Percent
 Vector Mean 52.92 Degrees
 Confidence Interval ... 7.04 Degrees
 R-mag 0.8



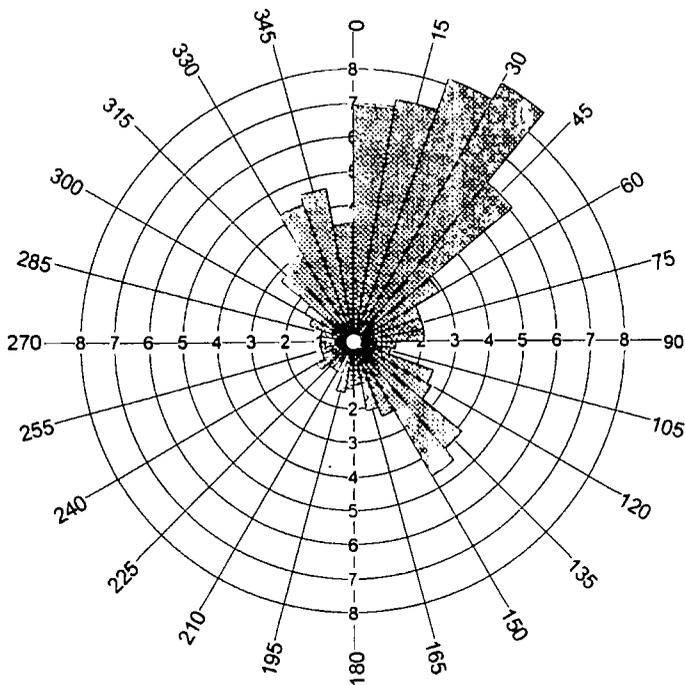
November 3, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 12.8 Percent
 Mean Percentage 3 Percent
 Standard Deviation 3.24 Percent
 Vector Mean 61.63 Degrees
 Confidence Interval ... 10.49 Degrees
 R-mag 0.63



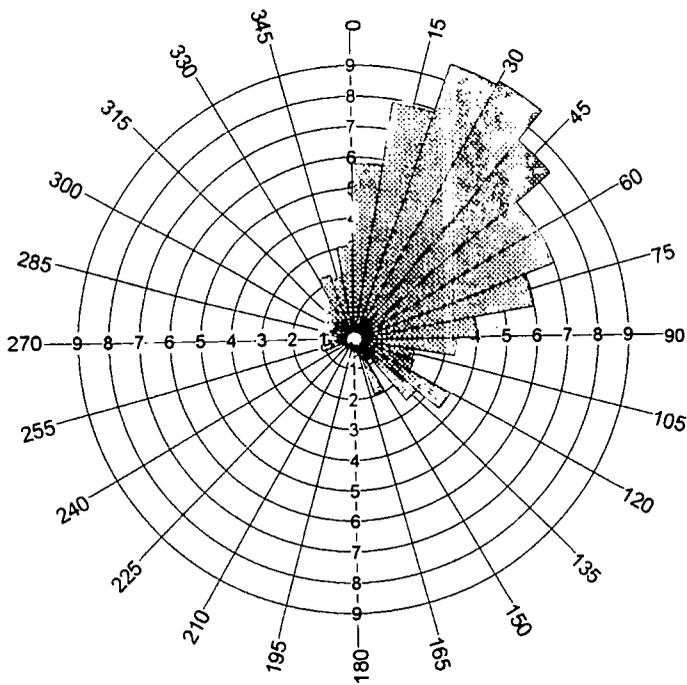
November 4, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 5.8 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.47 Percent
 Vector Mean 111.99 Degrees
 Confidence Interval ... 25.61 Degrees
 R-mag 0.29



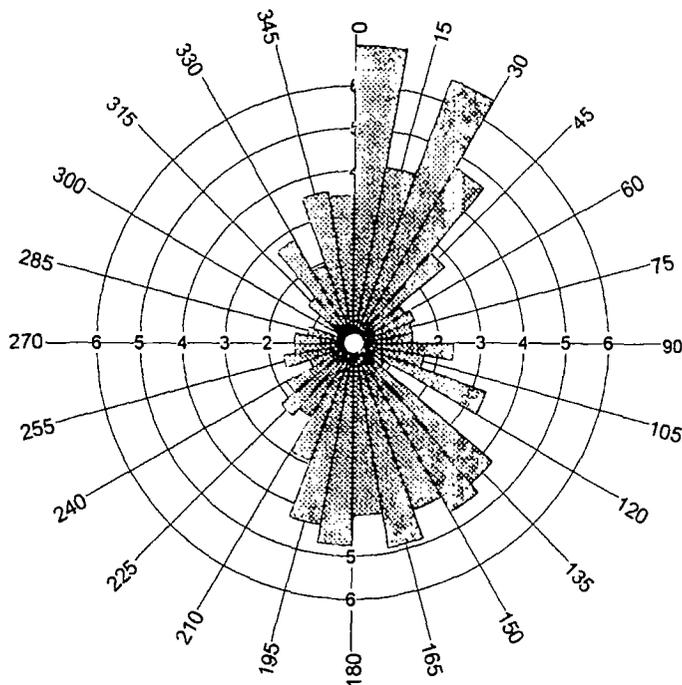
November 5, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 8.8 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 2.24 Percent
 Vector Mean 31.64 Degrees
 Confidence Interval ... 18.15 Degrees
 R-mag 0.4



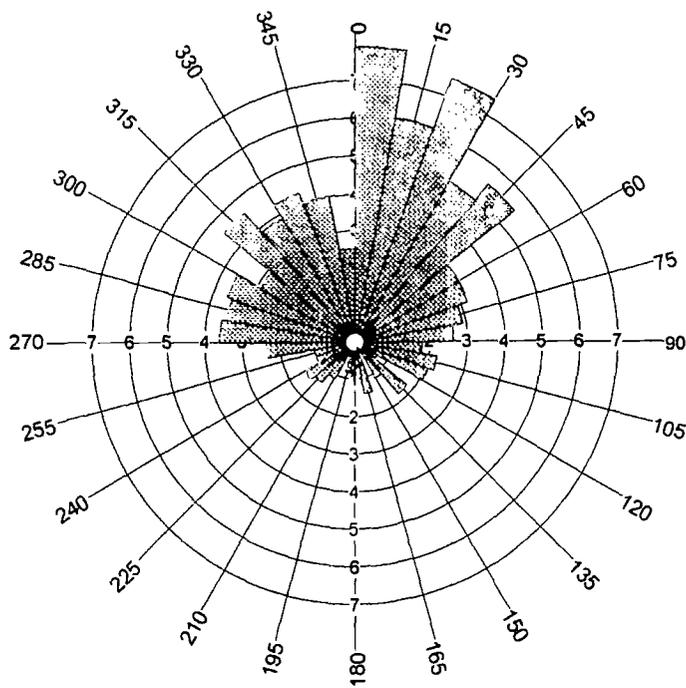
November 6, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 9.7 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 2.91 Percent
 Vector Mean 44.09 Degrees
 Confidence Interval ... 10.69 Degrees
 R-mag 0.62



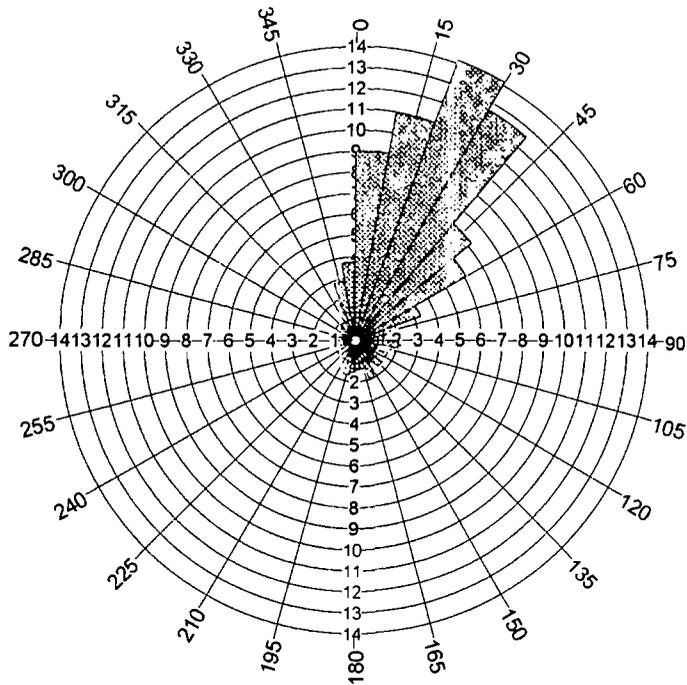
November 7, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6.9 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.65 Percent
 Vector Mean 93.69 Degrees
 Confidence Interval ... 63.05 Degrees
 R-mag 0.12



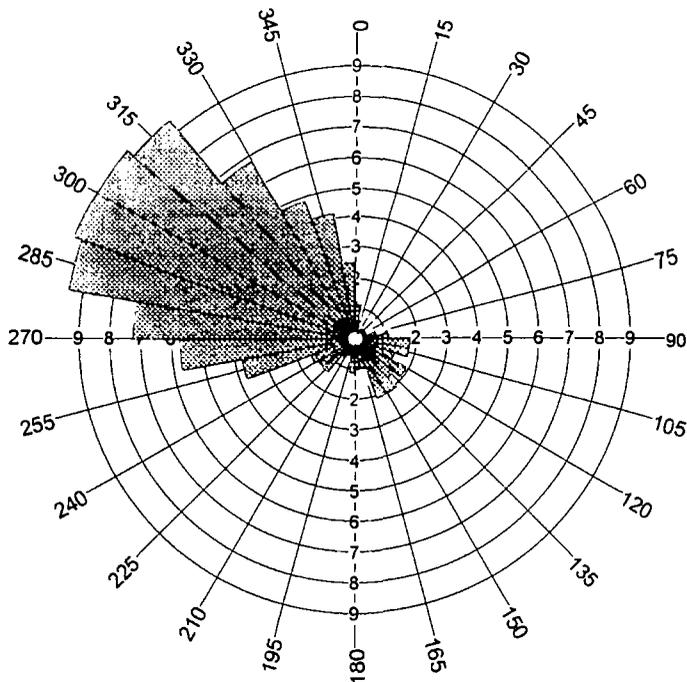
November 8, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 7.9 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.94 Percent
 Vector Mean 3.22 Degrees
 Confidence Interval ... 17.04 Degrees
 R-mag 0.42



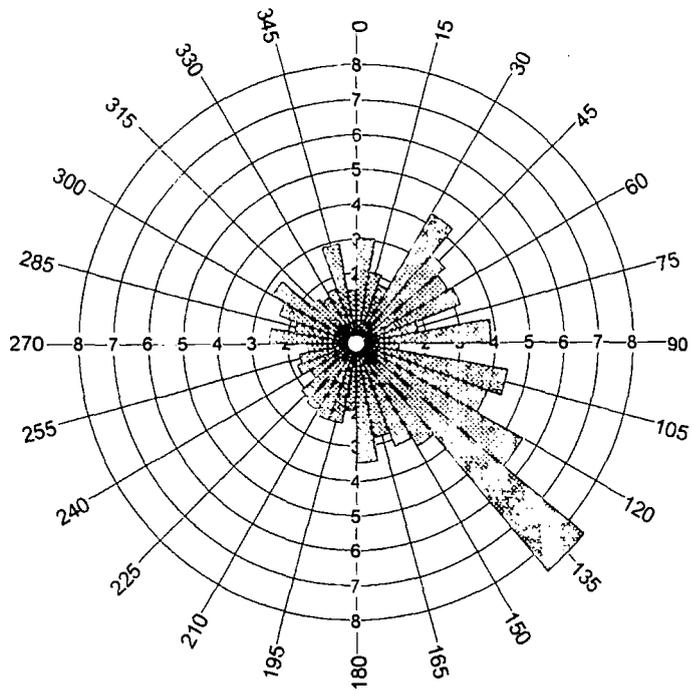
November 9, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 14.2 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 3.58 Percent
 Vector Mean 33.06 Degrees
 Confidence Interval ... 11.17 Degrees
 R-mag 0.6



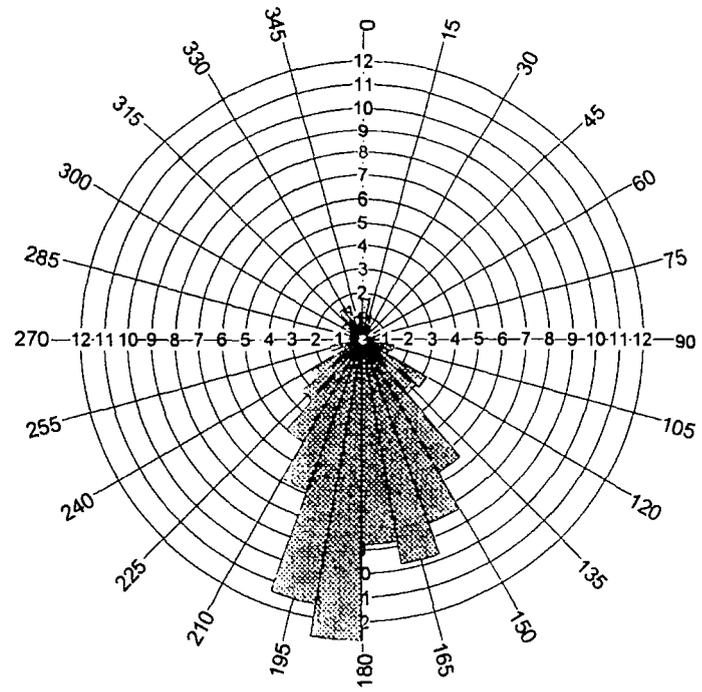
November 10, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 9.7 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 3.02 Percent
 Vector Mean 64.72 Degrees
 Confidence Interval ... 13.07 Degrees
 R-mag 0.53



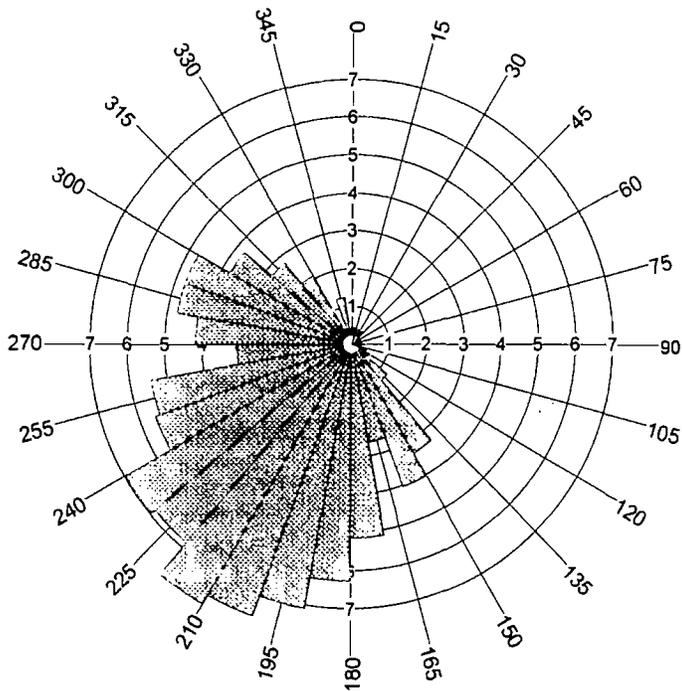
November 11, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 8.6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.42 Percent
 Vector Mean 111.48 Degrees
 Confidence Interval ... 37.06 Degrees
 R-mag 0.2



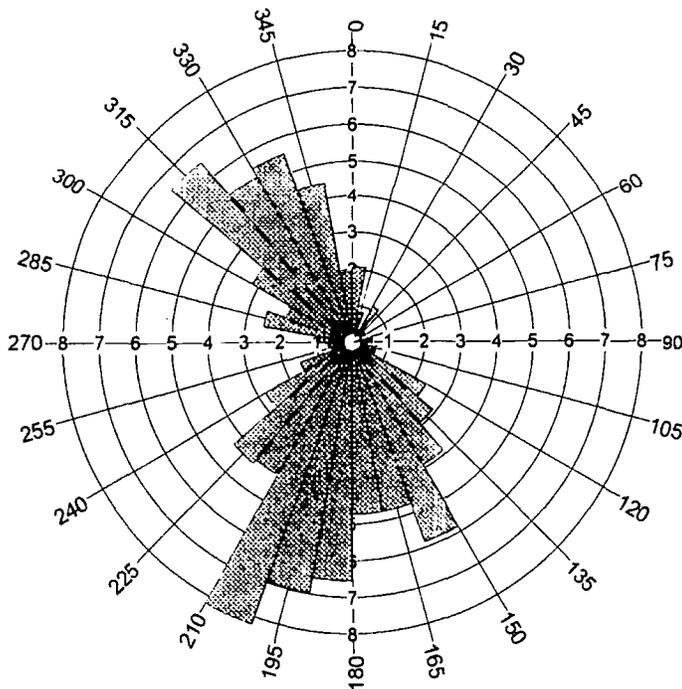
November 12, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 12.8 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 3.51 Percent
 Vector Mean 179.29 Degrees
 Confidence Interval ... 10.29 Degrees
 R-mag 0.64



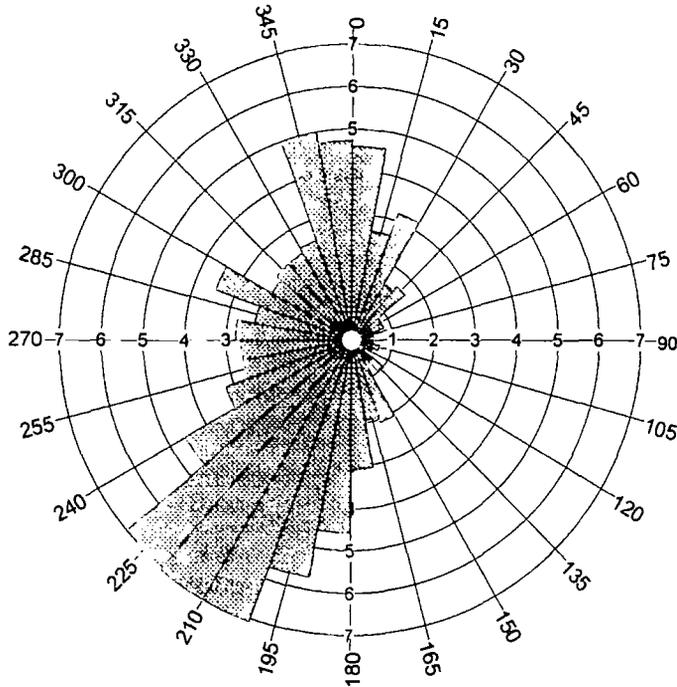
November 13, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 7.9 Percent
 Mean Percentage 3.2 Percent
 Standard Deviation 2.61 Percent
 Vector Mean 132.71 Degrees
 Confidence Interval ... 10.51 Degrees
 R-mag 0.63



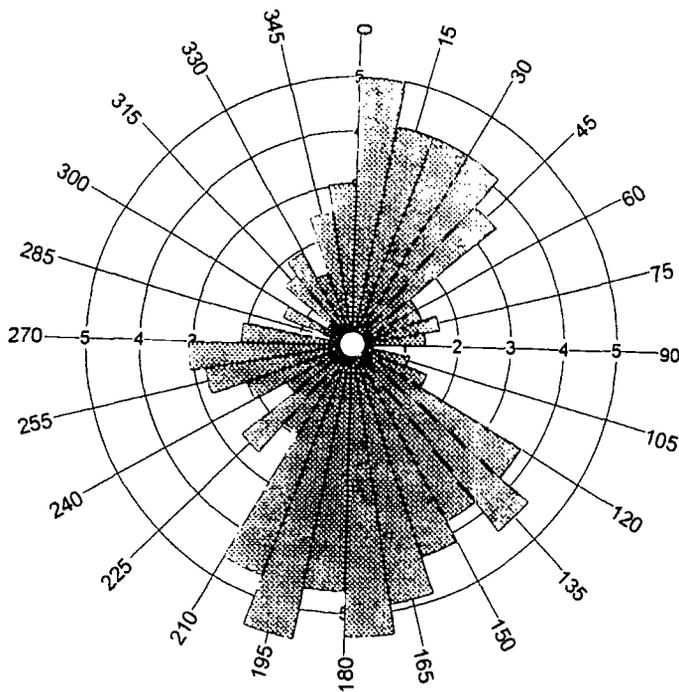
November 14, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 8.2 Percent
 Mean Percentage 2.9 Percent
 Standard Deviation 2.31 Percent
 Vector Mean 138.4 Degrees
 Confidence Interval ... 23.64 Degrees
 R-mag 0.31



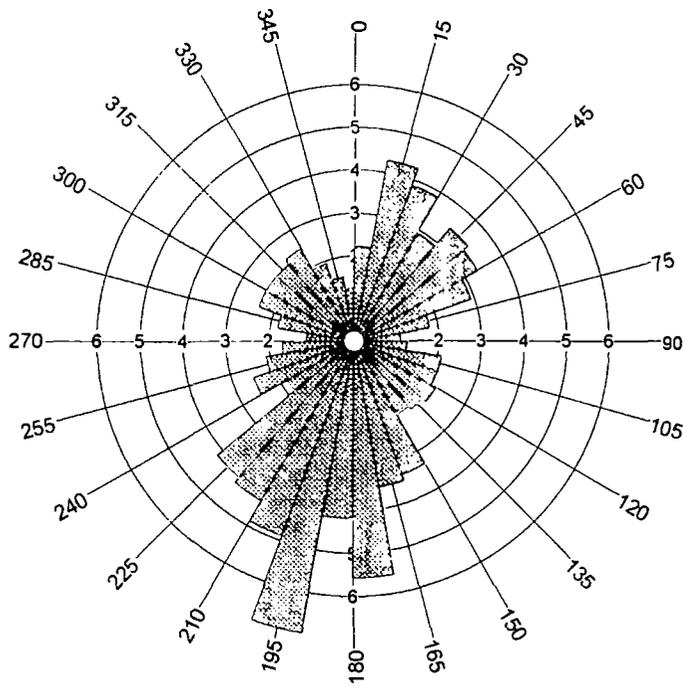
November 15, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 7.1 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.95 Percent
 Vector Mean 105.42 Degrees
 Confidence Interval ... 23.74 Degrees
 R-mag 0.31



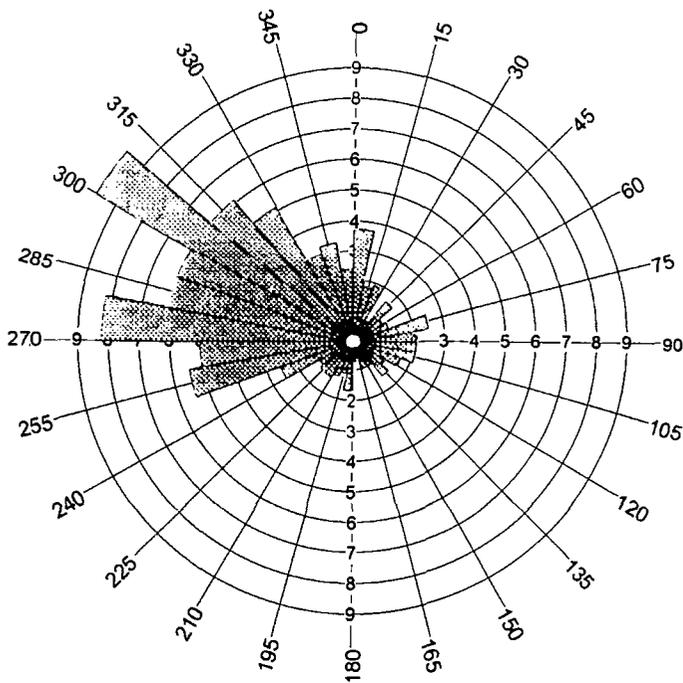
November 16, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 5.6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.52 Percent
 Vector Mean 158.62 Degrees
 Confidence Interval ... 57.91 Degrees
 R-mag 0.13



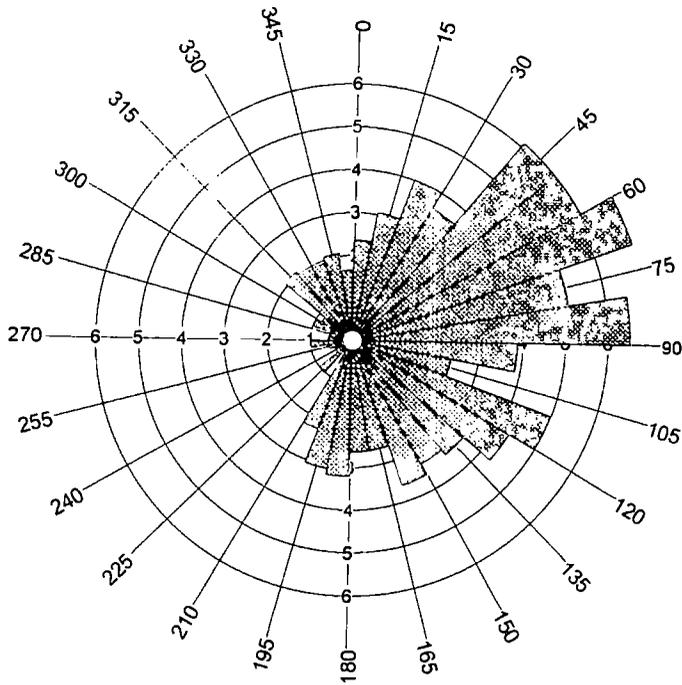
November 17, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6.9 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.32 Percent
 Vector Mean 176.73 Degrees
 Confidence Interval ... 58.54 Degrees
 R-mag 0.13



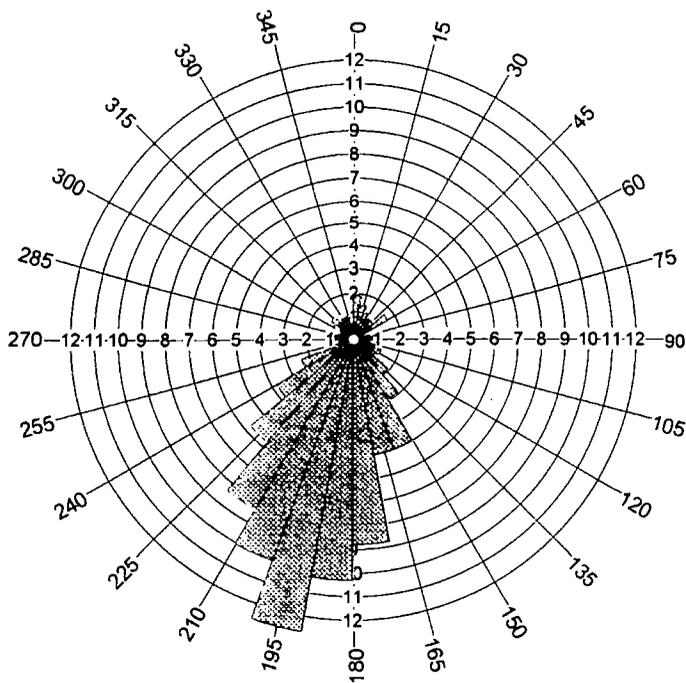
November 18, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 9.7 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 2.25 Percent
 Vector Mean 57.16 Degrees
 Confidence Interval ... 17.14 Degrees
 R-mag 0.42



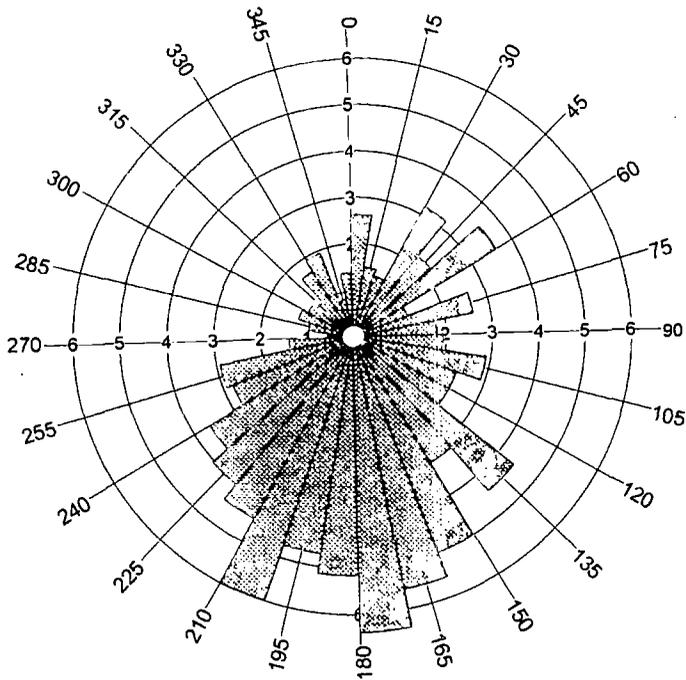
November 19, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6.9 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.87 Percent
 Vector Mean 81.72 Degrees
 Confidence Interval ... 17.48 Degrees
 R-mag 0.41



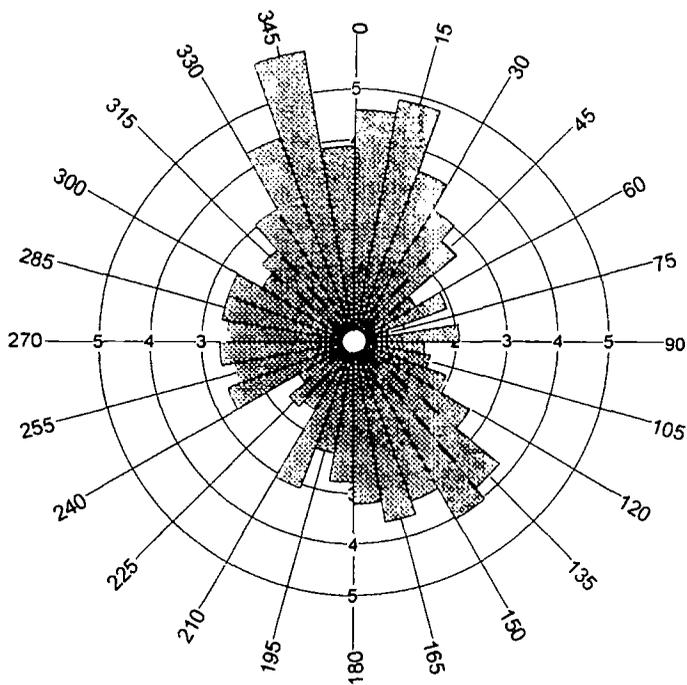
November 20, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 12.6 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 3.27 Percent
 Vector Mean 168.61 Degrees
 Confidence Interval ... 11.91 Degrees
 R-mag 0.57



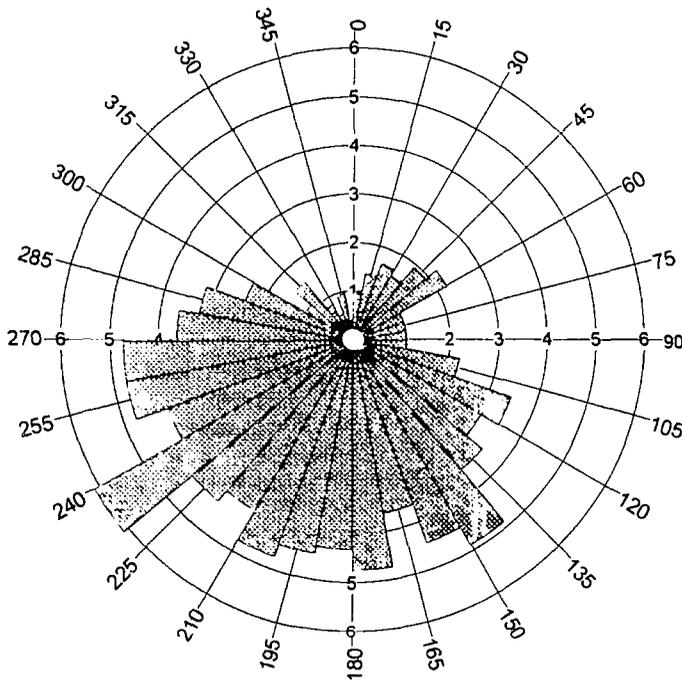
November 21, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6.4 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.6 Percent
 Vector Mean 169.25 Degrees
 Confidence Interval ... 23.68 Degrees
 R-mag 0.31



November 22, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 5.8 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.11 Percent
 Vector Mean 13.48 Degrees
 Confidence Interval ... 83.82 Degrees
 R-mag 0.09



November 23, 1998

Calculation Method Frequency
 Class Interval 10 Degrees
 Length Filtering Deactivated
 Azimuth Filtering Deactivated
 Data Type Unidirectional
 Population 720
 Maximum Percentage 6.1 Percent
 Mean Percentage 2.8 Percent
 Standard Deviation 1.59 Percent
 Vector Mean 159.64 Degrees
 Confidence Interval ... 20.29 Degrees
 R-mag 0.36